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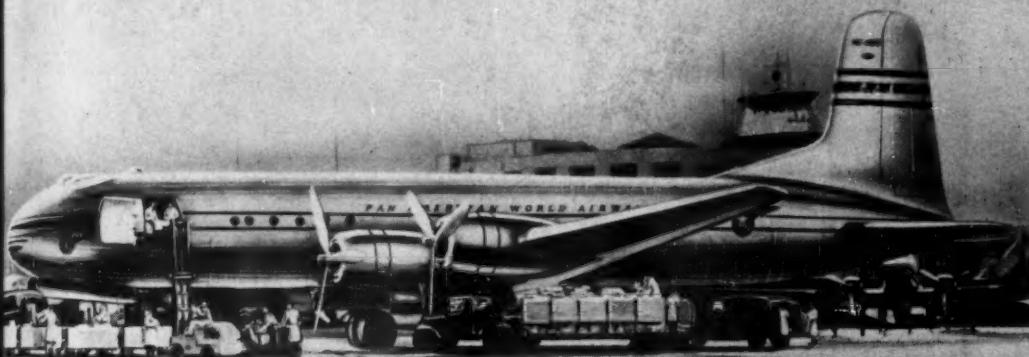
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FEBRUARY 1945



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AIR
TRADE MARK
TRANSPORTATION

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FEBRUARY
1945

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THE COVER—Tons of cargo are being loaded onto one of Pan American Airways' new DC-7s. Its wing spread is as great as the height of a 16-story building and the range of the plane is 5,000 miles. Capable of carrying 108 passengers, this mammoth Douglas craft is being planned to make the New York-Buenos Aires flight in 22 hours.

JOHN F. BUDD, *Editor and Publisher*

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CARGOPLANES...

Part of a Team

Don't overlook the fact that priorities on air cargo are in force, declares Mr. Breech. A heavy volume of civilian air freight is piling up which "represents a flood of business" waiting for the "war-brakes to be released." The railroad sparked business after the Civil War; the automobile after the First World War. After V-Day, states the author, it may well be the plane.

By ERNEST R. BREECH

President, Bendix Aviation Corporation



AIR CARGO in the first postwar years will be out of the ordinary. Air cargo today, bulking large tonnage on the wing to far-off battlefronts, is in the same sense "out of the ordinary." Impressed as we are by the indispensable job that cargo-carrying planes are doing to help win this war, we forget that even today these planes are but part of a team, with victory ships, railroads, trucks, and other means of transportation.

Someone makes the decision as to which shipments will be flown swiftly to their destinations and which will follow more slowly by land or by sea. The vital parts, emergency stocks, and supplies go by air. They are the out of the ordinary needs.

So it will be when peace returns. For although shipment by air will steadily increase, this method arrived after earlier and efficient systems of cargo-carrying had been put together. For hauling vast tonnages of ordinary freight at low cost with minimum manpower requirements, the railroad and the ship have the edge. They will not be pushovers for the plane when peacetime tonnage-shippers have to make their choice of a carrier.

The future of air cargo is not so much a controversial subject as it is an unknown quantity. We can profit by an understanding of the giant steps air cargo has taken these last few years, but looking ahead we must expect significant changes in the varying capacities of railroad, highway, sea, and air transportation after the war. The facts as they develop will upset any hard-and-fast predictions made now.

A few short years—short for the coming of age of a great industry—have served to ex-

pand the air cargo business far beyond the prewar expectations of its leaders. Shipment by air formed the obvious answer to many urgent problems involved in supplying our far-flung battlelines. Air cargo has played a vital part in modernizing logistics.

The war gains have been tremendous. By 1944 the Army Air Transport Command was averaging 47,200,000 plane-miles a month, with the compact Navy Air Transport Service adding another 7,450,000 miles to the monthly mileage total in September, 1944. Yet General Henry H. Arnold has stated that he "could use 4,000 additional transport planes today" if he could get them.

The Army keeps China alive via the longest air freight lines in the world, regular services linking Paterson Field in Ohio and Miami, Florida, with Karachi, India, and making connections with the 525-mile "Hump" route over the Himalayas.

During the entire year of 1939, the annual average poundage of express and freight carried by a single commercial transport plane was only 35,900 pounds. By 1943 this annual average had risen to 295,000 pounds per plane. But compare this total for a whole year with the record of a single flight from Belem,



PARACHUTING CARGO IN THE HIMALAYAS —
"The Army keeps China alive via the longest air freight lines in the world, regular services linking Ohio and Florida with Karachi, India, and making connections with the 525-mile 'Hump' route over the Himalayas." Shown is the result of a supply mission which took a C-47 cargoplane to the Kaoil range of the sub-Himalayas.

Brazil, to Port of Spain, Trinidad, in which a single transport plane carried 35,000 pounds.

These gains, however, leave a big question waiting to be answered: *will air cargo score equally notable advances in commercial transportation once the war is over and we go back to peacetime trade?*

One factor to keep in mind is that priorities on plane cargo are in force. Civilian air freight piles up behind the war materiel and the private war-essential parcels which have high priorities. Naturally the volume of this commercial backlog cannot be estimated in so many ton-miles. But it represents a flood of business, backed up and waiting for the war-brakes to be released from ordinary trade and transportation by air.

What the airlines themselves have to say on this matter might be viewed as sales talk, if actions did not speak louder than words. During the month of September, 1944—almost 11 years after the first airplane sleeper was placed in service between Atlanta and New York—five American airlines ordered \$128,000,000 worth of sky giants, while a sixth air-carrier was busy closing a deal for another \$5,000,000 worth of civilian adaptations of Douglas, Curtiss and Lockheed war transports. (See October, 1944, issue.)

Now \$130,000,000 may mean anywhere from 280 to 300 planes—a single month's orders, with two-thirds of our 17 airline companies not heard from and with only three big aircraft manufacturers involved. These orders clearly indicate, however, that the air carriers anticipate expanded postwar business.

Ninety percent of this airlines business in the first year after the close of the war will probably be in passenger traffic. Despite the tremendous demonstration of world-wide air

cargo service given during the past two years by the ATC it must be remembered that in 1943 air express had risen to only 6.8 percent of total airlines revenues.

Air freight will begin in earnest with selective commodity shipping and the general use of the large, inherently economical all-cargo ship.

Compared with the railroads—which ship the bulk of the country's commodities—the plane has a long way to go. In 1939 air express was one-one thousandth of the railroad freight load, and despite its wartime gains it is still only a small fraction of one percent.

Now the old categories of air mail and air express—corresponding to ordinary mail, parcel post, and railway express—will not fill hundreds of planes, no matter how far extended are the freight routes now being applied for by the airlines and newcomers to the field. What ultra vital commodities will it pay our commerce to ship by air?

Here again actions speak louder than prophecies.

Regular cargo services are beginning to appear. There is one between New York and Miami, and one between New York and Salt Lake City. Using "stripped equipment"—DC-3 airliners designed for cargo—TWA now operates a special daily-except-Sunday all-cargo service between New York and Chicago. In September, American Airlines launched a daily schedule of air freight reaching the 43 cities it serves.

Last summer the orchards and gardens of America moved a week and more closer to the kitchens of the metropolis, with the first vita-min express on record.

On July 24, United Air Lines, in a three-cornered experiment with the produce-buying

affiliate of the A&P food stores and the Home Economics Department of Wayne University, began researching the market potentialities of airborne vegetables. Tree or vine-ripened fruits and vegetables were picked one day in Fresno, Cal., and served the next to 38 expert tasters in Detroit. Half of the shipment was delivered to the Wayne laboratory to be tested for vitamin, mineral, moisture and sugar content. These air shipments and accompanying tests of ripened produce will go on the year 'round. (See *Airfreighting Perishables*, November, 1944, issue.)

Landing Strips Planned

Local California chambers of commerce began talking about landing strips to be laid out in the growing areas. At least one manufacturer revealed he had on his drawing boards a plane with a cargo fuselage that can be detached and used as a trailer. Eastern Airlines are conducting an extensive study of what perishables can be shipped more effectively and economically by air.

On September 4, American launched its regular freight lines for shipments of 25 pounds minimum weight, with the world's first full plane-load of a single commodity. It flew 5,000 pounds of spinach from Burbank to the vegetable trade in three eastern cities.

Time is the plane's invisible cargo. Things people need in a hurry will inevitably gravitate towards the air cargo field; perishable produce and biologicals; Red Cross disaster services and supplies; and clean shirts.

The up-to-the-minute employees of an American Airlines base in the mid-Atlantic have made their wilderness a paradise. They send out their laundry every Monday and get it back on Friday, after it has been neatly washed and ironed in North Africa, 1,200 miles away!

Even after a peacetime freight volume for air transportation materializes, the rate of the industry's expansion must still depend upon three practical factors, only one of which is a certainty now. The trained manpower for this expansion, we know, is going to be available. Adequate ground facilities and lowering of air freight rates, although they show visible trends in the right direction, are not yet here to the extent needed.

Deputy CAA Administrator Charles I. Stanton himself supplies the working figures on air transportation's trained labor market; at present our military air forces have about 350,000 pilots. When they return, not all of them will wait for industry to come and get them. Three discharged fliers showed up in Washington the other day to see what they could do about opening an airport. They plan to form a partnership in a city of about 40,000 and to construct an airport nearer town than the present inadequate one.

While in the capital, they also went shop-

ping for some Government training planes. They plan to fly a taxi service, to dust crops, or to do anything else a journeyman airman can do, including the operations of an airplane service shop.

I take this as a sign of things to come. Aviation may very well spark a major industrial expansion in this country analogous to the automobile expansion that pulled us out of the dislocations of World War I, or to the railroad expansion that made over the national economy after the batterings of the Civil War.

At any rate, the promise of an aircraft expansion has gained greater currency today than did W. C. Durant's "wild assertion" back in 1908, that someday the country would manufacture a million automobiles. Six years later, when the First World War began, although we weren't yet manufacturing anything like a million cars a year, a total of 1,626,000

The Author

ERNEST R. BREECH, the man who heads Bendix Aviation Corporation, is the son of a Missouri blacksmith. Back in 1921 he won the gold medal in the State of Illinois examination for certified public accountants; and in the years since then, he has risen to the top in corporate management by combining irrepressible enthusiasm with the heartiest respect for the hard, brilliant figures of successful business management.

By the time he was elected president of Bendix on February 24, 1942—his forty-fifth birthday—he had accumulated 22 years of working knowledge, chalked up many a conspicuous achievement in challenging management assignments of increasing size and scope.

The man who directs this corporation—almost a billion-dollar-a-year business today—left Drury College in Springfield, Missouri, when he was 20, and took a \$15-a-week job with Fairbanks, Morse & Co. in Chicago. Meanwhile he attended night classes at Walton School of Commerce and the University of Illinois. He was made a full-fledged auditor and had transferred to Adams & Westlake, a railroad supply firm, to learn manufacturing cost-control a year before he became a Certified Public Accountant. In 1922 he addressed the Illinois Manufacturing Cost Association on hour rates. In the audience was the treasurer of the Yellow Cab Manufacturing Company, who hired him on the spot.

General Motors Corporation took over Yellow Cab in 1923. Six years later, GM made Breech general assistant treasurer of the corporation, a position he held until 1933.

As a GM director of TWA, Mr. Breech put through a merger of three airlines: TWA, Eastern Airlines, and Western Air Express. To run the new merger, North American Airlines, GM elected him chairman of the board (and president from 1933 to 1935). From that time the erstwhile Missourian did his working and relaxing on airliners and aboard aircraft carriers maneuvering off the Atlantic Coast. He had found his life-enthusiasm, and it was aviation.

Bendix had been put together in 1929, but Mr. Breech did not enter the Bendix picture until 1937, representing GM on the Bendix board of directors.

cars were registered in the United States.

Presumably that meant as many drivers. All of them did not get in the Army, for veterans of the First World War well remember how their outfits welcomed with open arms any rookie who could drive a car. But in 1920, drivers had registered 8,226,000 motor cars for themselves and others who could drive. Figuring slightly better than one licensed operator per car, we can safely deduce that five years before the great automotive expansion went into high gear, we had 10,000,000 people familiar with the motor car.

Manpower Supply Good

Today we have a comforting manpower statistic to compare with the above. The last published estimate of the total of trained American military air forces by the end of the war was something between four or five million men, many of whom will have the words, "successfully completed technical courses," written across their service records. Almost to a man they are very young, in contrast with the presumably higher average age of the auto mechanics and drivers we had in 1920.

If we can assume that wise policy-making on a national scale will solve the four economic "ifs," of an orderly reconversion, reduced taxes, a steadily rising standard of living, and propitious international relations, then the second big question facing the air cargo business will be how to obtain early and drastic reduction of its freight rates. Unless they come down, air cargo will not be able to divert from the railroads—whose rates average less than one cent per ton-mile—even the rightful vital cargo we have been talking about.

Considering the fact that until recently the average air rate was 80 cents per ton-mile, the progress here has been heartening. Again the war has served to demonstrate what can be done. With the Curtiss-Wright cargo plane

used by the Army now showing operating costs of only six cents per ton-mile, it is within reason to expect much reduced air cargo rates. One airline now carries certain merchandise on a rate basis as low as 30 cents per ton-mile, including pickup and delivery. Pan American Airways already proposes an average cut to 25 cents with certain classifications as low as 10 cents.

One of the longest strides towards getting the cost down, however, was taken by NATS, attacking the problem from another angle. By packing air cargo in nets, NATS has accomplished a reduction in tonnage that goes far toward closing the gap between railroad and future air cargo charges.

The wingtip of a Martin bomber weighed 825 pounds when it was shipped crated to the Navy. When they had uncrated it and stowed it in nets aboard a plane bound for the South Pacific, it weighed 175 pounds.

That brings a new dimension to thinking about air cargo.

Yet the most serious problem remains to be worked out—the need for sufficient ground facilities for handling the transportation of commodities by air.

Inaccessibility of airports serving the large cities, coupled with a scarcity of feeder airports in smaller towns, is a serious handicap at present. If, however, the small towns have anything to say about it, this will be soon remedied. Cities large and small are on their toes. Public pressure for a place on the airline map reminds us of the community competition in the last century for "a railroad through the town." Today, the Main Streeters realize, an efficient airport may spell the difference between civic prosperity and the doldrums in the years to come.

Americans have a way with expansions. With many people in many fields of activity doing something about it, air cargo is on the way. We can, I am confident, attend to the national expansion first, and take the worldwide expansion in our natural stride.

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Great Britain's New Planes Aimed at Peacetime Flying

*Most of the Civil Aircraft are Expected
To Make Their Trial Flights This Year*

GREAT BRITAIN means to be included in the picture of world air transportation in a big way; and while the final blows against the Nazi foe are being loosed, British aircraft manufacturers are looking ahead and beyond. Already on tap are a number of new planes to fill the mosaic of British civil aviation.

Design work on the Miles M-60 has reached the "advanced stage," according to reliable reports from the island. First test flights are expected to take place before the year is out.

A medium-size all-metal monoplane, the M-60 will have a capacity of 14 passengers and two crew members. Its four engines will afford a maximum range of 1,000 miles. This would put the plane in the feeder-line or air-taxi category. Special attention is being given to passenger comfort on certain routes where it is expedient to fly at high altitude; this,

probably, will mean pressurized cabins.

And then, there is the Bristol *Freighter*, which first hit the pages of Air Transportation in December, 1944. Called the aerial counterpart of the familiar tramp steamer, the *Freighter* is reported to operate at less than 15 cents per ton-mile. The gross load weight of the craft is 27,500 pounds, with the pay load at 9,000 pounds. It is powered by two engines, and the cruising speed hovers between 120 and 150 miles per hour.

What is particularly noteworthy is that the



DE HAVILLAND RAPIDE—Already in construction is an eight-passenger plane meant to replace this light craft. Unnamed as yet, the new plane is designed for feeder-line operations in Europe.



BRISTOL BOMBAY—The new Bristol *Freighter*, British "tramp plane" reputed to be able to operate at less than 15 cents a ton mile, is based upon this design. The *Bomby* is a famous troop carrier.

new *Freighter* is based upon the design of the Bristol *Bombay*. The *Bombay* is a well-known troop-carrier, and has done a great deal of splendid work in the East.

Bristol is hard at work upon another type which is expected to be a major bid for trans-oceanic preference. No details have been aired, but it is known that the secret craft is in the "big airliner" category grossing approximately 110 tons. Other reports state that it will carry 50 passengers in addition to 4,000 pounds of mail or express cargo at a cruising speed of 250 miles per hour.

The Handley Page *Hermes*, announced in the *Air Transportation* of November, 1944, seems to fall into the latter class, in some respects; that is, one version of that plane is designed to carry 50 passengers. The cargo version is built to transport 16,000 pounds of freight.

Progress continues apace with the Avro *Tudor*, which is designed to carry up to 125 passengers. This hunk of plane reaches an all-up weight of 68,000 pounds; and, if reports emanating from Britain are correct, the *Tudor* will climb for the upper reaches this year!

And now comes the news of yet another British airliner. Unnamed—at least up to the time of this writing—this craft will have a capacity of 40 passengers. It is being built by the Airspeed Company, a subsidiary of the de Havilland Company. This craft is specially designed for feeder-line operations in Europe.

Meanwhile, de Havilland has in preliminary construction an eight-passenger plane which would go into service for light transport and feeder-line duty. It is intended for worldwide operation, and will rate as a replacement for de Havilland's twin-engine biplane of wood construction, the *Rapide*.

Cross-Country Accommodations Are Doubled by Trans-Canada

With the opening of this month, a 100 percent increase in its transcontinental passenger accommodations for civilian and wartime travelers was announced by Harper McNeill, New York district traffic manager for Trans-Canada Air Lines. This coincided with the inauguration of a third TCA transcontinental flight between Montreal, Ottawa, Toronto, Winnipeg, and Vancouver.

An important feature of the new service will be the provision of considerably improved twice daily cross-continent flights from New York to western Canada and the Pacific Coast. Provision is also made for two through services daily to London, Ontario, and Windsor-Detroit. Additional passenger accommodation will be provided by using fourteen passenger *Lodestar* aircraft on all transcontinental flights.

It is the established policy of TCA to hire for flight duties only men from the armed forces. Except in unusual cases the door is closed, for the time being, to all others.



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VITAMINS IN THE AIR



Hard to believe? Okay, Mr. Skeptic—read this step-by-step story on how nutrients essential to good health were saved through shipping fresh produce by air. Follow the meticulous tests on airborne and railborne perishables and consider the comparative values of each at the destination point. There is much food for thought on tomorrow's food for the nation.

By DR. SPENCER A. LARSEN

*Director of Air Cargo Research,
Wayne University, Detroit*

WE all know that progress cannot be expected to get under way until there is a clear recognition of existing shortcomings and until these shortcomings are linked to the prospect of better things to come. Growers, shippers, distributors, and the public alike lament the wastes connected with the marketing of fresh produce which occurs because of premature picking, poor ventilation, undependable refrigeration, delays, diversion of cars enroute to market, and the *slow speeds* of conventional transportation. Let's examine two of these sources of dissatisfaction a bit more fully.

It is hardly necessary to state that, in order to stand up under the hazards of surface transportation and present-day marketing routines, fruits and vegetables are now picked in what is commonly called a "green-ripe" stage. This is a practice which prevents the full maturing of the produce on the vine or tree and which robs certain products of their big opportunity, during the final stages of their growth, to develop more abundantly those nutrients so essential to good health. A few additional days in a California, Texas, or Florida sun can mean a great deal to the apricot, cantaloupe, or tomato.

Furthermore, after this produce has been picked, packed, and made ready for shipment, another great gain would be realized if, instead of lumbering along at a snail's pace of 15 miles per hour, highly perishable produce could be taken to its market overnight at speeds of 150 to 250 miles per hour.

These two factors, vine-ripening and speed of transportation, are inseparably linked. One is of no value without the other.

Here let me emphasize my conviction that if we can solve these twin problems, we shall make a contribution of inestimable value to the public welfare. By doing this we shall so

raise nutritional standards as to bring about a definite improvement in the much-lamented state of the public health.

Let me illustrate the effects of these ordinary practices. Gearing operations to slow transportation has compelled the growers in many instances to raise inferior varieties of produce, sacrificing eating quality to durability. This is bad enough, but in order to get their products to the consumer before they spoil they have to take that tomato, peach, or cantaloupe from the vine or tree before it begins to develop its full appetizing color and juiciness, its fine flavor, texture, and its full sugar and vitamin content.

Not until marketing processes have been speeded up to the point where we can raise the choicest varieties of fresh produce, mature them fully on the vine or tree in the sun, and then finally speed them to market well before deterioration of essential nutrients takes place, can we consider our duty to society fully discharged. That will call for characteristic American ingenuity and the cooperation of all groups concerned—growers, distributors, the aviation industry and educational institutions—plus, I suspect, an abundance of patience and understanding.

It was to make some contribution to the public well-being in the solution of the foregoing problems that we at Wayne University decided several months ago to make a realistic and impartial appraisal of the possibilities of transporting certain perishables by air



HIGH VITAMIN CONTENT—California sun-ripened airborne vegetables, superior in freshness to those shipped by rail, receive minute examination at recent United Fresh Fruit and Vegetables Association convention at Chicago shortly after their rapid delivery by a United Air Lines Cargoliner. Giving their stamp of approval are four officials of the UFFVA: (left to right) Glenn Phillips, vice chairman, Air Cargo Section; William Garfitt, executive vice president; Ralph Myers, chairman of the Air Cargo Section; and Anthony Zulfer, president.

by comparing the quality of fresh produce shipped in this fashion with that of the same products shipped by conventional carriers.

It may seem to some that we were setting out to prove the obvious. Everybody knows that a fresh, fully-ripened tomato is better than a green one that has been held in storage a couple of weeks. But what we did not know is how much better it is, or, if it is actually better, whether or not it is sufficiently superior to stand the added charges which air cargo will entail. Nor did we know much about the problems that would have to be solved before air transportation of fresh produce could make its full contribution to the national economy.

We set out to find the answers to these questions, and, while I must say, in all truthfulness, that our investigations still have a long way to go, I can also say that we have come up with certain information which I feel has enough value to those who are working toward similar goals to warrant our making them public at this time.

In setting up our experiments, which in essence are designed to measure the effects

of time and handling upon the quality of fresh produce, we considered the problems of procurement, transportation, storage, distribution, nutrition, and the reactions of the ultimate consumer. To deal with the various problems we enlisted the aid of United Air Lines, Pan American World Airways, A & P Food Stores, our colleagues in the Home Economics Department at Wayne University, interested consultants on packaging, public health and dietetics, and representatives of the U. S. Department of Agriculture, as well as numerous citizens interested enough to serve on our consumer panels. With the generous help of all of these, as well as growers, shippers, receivers, packaging manufacturers and a host of others, we went to work.

Since our studies reveal that tomatoes are among the most promising of the candidates for air shipment, a detailed statement on the research results on this commodity should prove interesting to the reader.

Tomatoes of the Pearson variety from Bakersfield, California, were selected for a controlled experiment to ascertain the comparative qualities of the commodity when shipped

by rail and by air. The railborne sample consisted of four conventional lugs of tomatoes picked in the mature-green stage on November 2, 1944. All the tomatoes in the field from which the sample was taken were harvested for commercial shipment on the same day.

There was a trace of rainfall .01 of an inch the day before picking but this did not have any observable immediate effects. While the tomatoes in the field were generally of good quality, there was a noticeable infection from various types of diseases and we later discovered an infestation of pin worm; but by careful sorting at origin this did not result in any bad effects.

The four-lug sample taken from this field was picked by W. T. Pentzer, physiologist, and W. R. Barger, associate physiologist of the Bureau of Plant Industry, United States Department of Agriculture, and myself. The tomatoes were taken directly to the packing plant of the Sanguineti Fruit Company, Edison, California, and packed for shipment. Tomato experts declared the fruit of good quality and at just the right stage of maturity for green-wrap shipment. The tomatoes were given the standard Brogdex treatment, packed in conventional lugs, and placed in the center tier of the rail car, one lug on each of the second, third, fourth, and fifth layers. The outside temperature when the fruit was placed in the car was 72 degrees. The gross weight of the shipment was 146 pounds, 12 ounces. A recording thermometer, supplied by the Bureau of Plant Industry, was placed in the lug at the center layer.

Temperatures enroute were normal for the season. During the first four days, the temperature remained steady at 70 degrees and thereafter dropped steadily approximately three degrees per day until 53 degrees had been reached, at which point there was no further temperature change during transit.

Upon arrival in Detroit, on November 13, the quality of the railborne shipment was pronounced good by A & P tomato experts. They reported the sample healthy and attractive, and it graded higher than their usual receipts. The actual sorting resulted in 10 percent "throw-outs." Gross weight of the sample lot upon arrival was 144 pounds—a loss of two pounds, 12 ounces, or 11 ounces per lug.

The shipment was then placed in A & P's tomato-ripening rooms until November 16, when those tomatoes in the shipment considered ripe enough for commercial use were sorted out by the senior packer. This sample was selected to represent the railborne phase of the experiment and was compared with tomatoes actually on sale in retail stores so as to satisfy ourselves that their maturity was representative of fruit then being offered for sale. It will be remembered that the first

The Author

DR. SPENCER A. LARSEN was born on a farm in Spanish Fort, Utah, 43 years ago next month. A university graduate with three degrees—Brigham Young University and New York University—he has occupied successive positions as educator director for Arnold Constable & Company in New York City; professor of marketing and business management at the University of North Dakota; consultant for the North Dakota Tax Survey Commission; and his present one as director of Air Cargo Research at Wayne University, as well as professor of business administration. In addition, Dr. Larsen serves as research consultant for the War Production Board.

Dr. Larsen is the author of many publications and magazine articles. He also served as expert economic witness before the Civil Aeronautic Board and the Interstate Commerce Commission.

tomatoes to ripen were selected to represent the railborne sample. These obviously were the most mature when picked and would, therefore, seem to constitute the cream of the railborne shipment so far as this experiment is concerned.

Meanwhile, tomatoes from the same field in Bakersfield, California, had been left on the vine to ripen for air shipment—the plan being prearranged for United Air Lines to fly the vine-ripened tomatoes into Detroit, so timed that they would arrive when a portion of the railborne sample had turned ripe. Accordingly, on November 14, H. C. Meith, farm advisor, of the Cooperative Extension Work, College of Agriculture, University of California, cooperating with the Department of Agriculture, who had followed the experiment since its inception, went to the same field and picked the prearranged sample of Pearson tomatoes at a stage of maturity believed to be about right for air shipment. After picking, Mr. Meith described their state of maturity as "pinks and firm ripes."

The sample lot was then placed in a container especially designed for our purposes by Glenn Mather, of the Container Company, Van Wert, Ohio. This container is designed for the shipment of highly perishable fresh fruits and vegetables, allows ample ventilation, and removes the pressure that results from stacking, thereby eliminating bruising.

The weather at Bakersfield during the interval of the picking of the rail and airborne samples was anything but favorable. Throughout the week previous to picking, there was a recorded total rainfall of 1.28 inches. Tem-



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peratures ranged between 45 degrees and 70 degrees. As a result of this unfavorable weather, perhaps to be expected at this season of the year, the sample exhibited some rain checks that detracted slightly from their appearance.

Obviously, then, so far as the important factor of procurement is concerned, the airborne counterpart of the rail shipment in the experiment had what appeared to be two strikes on it even before leaving the field.

The airborne shipment was placed aboard United's *Cargoliner* on the afternoon of November 14. A recording thermometer accompanied the shipment, and the temperatures recorded were fairly steady from origin to destination. The temperature ranged between 66 and 70 degrees Fahrenheit. Upon arrival in Detroit, November 15, the sample air shipment was found to be in excellent condition. The temperature of the fruit upon arrival was 70 degrees. In the judgment of experienced produce men it was of about the right degree of maturity for sale in retail stores.

On November 16, the railborne sample and the vine-ripened counterpart shipped by air were subjected to the scrutiny of our research group in Detroit. Inasmuch as hot house tomatoes, retailing at 40 cents per pound were available in the market, we decided also to make a comparison with a selected sample of these which we obtained from the Detroit Union Produce Terminal. Airborne tomatoes transported at relatively high rates would be priced somewhere near the hot house variety and would, therefore, have to compete in quality.

Since the tomato is an important source of Vitamin C, this factor was checked for each of the three sample lots by means of the Fisher Titrometer, using tenth normal dye solution. The results of this single experiment indicated a marked superiority of the airborne sample over the railborne and hot house samples. The average of six samples showed 25.45 milligrams of Vitamin C per 100 grams of sample for the airborne tomatoes as compared to an average of 14.43 and 13.18 milligrams respectively for the railborne and hot house samples.

Consumer panels adjudged the airborne samples to be superior to the railborne in aroma, juiciness, flavor, color, texture, and general acceptability, while produce men attested to the good merchandising potentialities of vine-ripened, airborne tomatoes, believing that 15 percent of the out-of-season tomatoes of this quality shipped from California to the Midwest could bear an air cargo rate of 20 cents per ton mile; and that 20 percent could bear a 15 cent charge; 40 percent a 10 cent charge; and that their total requirements could be handled on a five cent per ton-mile basis.

Comparison of Vitamin C Content of Airborne, Railborne, and Hot House Tomatoes
Detroit, November, 1944

Sample No.	Airborne ^a Milligrams of Vitamin C per 100 grams of Sample	Railborne ^a Milligrams of Vitamin C per 100 grams of Sample	Hot House ^b Milligrams of Vitamin C per 100 grams of Sample
1	25.0	17.1	12.0
2	29.6	14.1	11.9
3	27.7	14.9	17.6
4	21.8	12.7	10.6
5	22.8	15.2	16.2
6	25.8	12.6	10.7
Average	25.45	14.43	13.18

^a Airborne and railborne samples of Pearson tomatoes obtained from Bakersfield, California.

^b Selected hot house sample grown in Ohio and obtained from Detroit Union Produce Terminal.

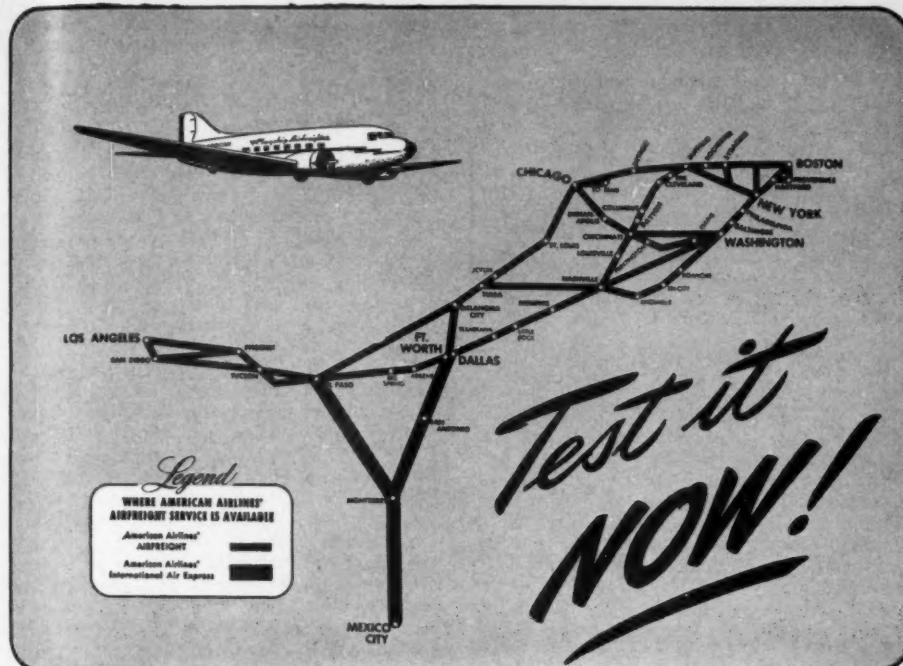
Emperor grapes were shipped from Exeter, California, under the same controlled conditions as set forth for tomatoes. Both the rail and airborne shipments arrived in Detroit in excellent condition. Because of an extra 10 days of ripening, the airborne grapes exhibited their full color and appeared just as fresh as if one had reached, by some magic, to California and picked them off the vine. The stems and cap-stems were a plump, full green, and not a single berry had dropped from a bunch. The rail-shipped grapes, which had been picked 10 days earlier, had lost considerable of their sparkle, and the stems and cap-stems were showing noticeable wither and discoloration. Nevertheless, in eating quality the rail shipped grapes were very nearly as good as those shipped by air.

Laboratory analysis revealed no significant differences in sugar or vitamin content. Produce men concluded that because of their extra freshness, they could pay about two cents more per pound for the airborne grapes.

Apricots brought in from the West Coast by rail and by air were compared and scored on a five-point scale by our taste panel. In sweetness, the air-shipped apricots rolled up a total score (by 11 judges) of 79 points, as compared with a score of 32 for those picked greener and transported by surface means. Juiciness was scored 75 to 43, texture 80 to 34, flavor 84 to 38, while the general score of acceptability was 85 to 33—all in favor of the airborne apricots.

This was the first time some of the members of this sophisticated group had eaten tree-ripened apricots, and, without exception, they pronounced them mellow, delicious, and really good. An obvious conclusion is that consumers would prefer the tree-ripened apricots.

Fordhook lima beans were shelled in Cali-



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THE NATIONAL AND INTERNATIONAL ROUTE OF THE FLAGSHIPS

Accent on Air

When the 41st annual meeting of the United Fresh Fruit and Vegetable Association opened in Chicago on January 26, a definite keynote was struck—and that was *air transportation*.

The newly created Air Cargo Section of the UFFVA is composed of Ralph Myers, of Salinas, California; Glenn F. Phillips, of Los Angeles, California; Austin E. Anson, of the Texas Citrus and Vegetable Growers and Shippers Association, Harlingen, Texas; Nate Allen, of the American National Cooperative Exchange, New York; and A. C. O'Donnell, Pittsburgh, Penna.

fornia and shipped by air in Aerofilm bags provided by the Goodyear Tire and Rubber Company. The preshelling saved 68 percent of the weight and the shipment arrived in excellent condition. They were kept under refrigeration at 40 degrees Fahrenheit. Every second day they were kitchen- and consumer-tested and compared with a recognized top-quality sample of freshly-frozen Fordhook limas. Three different groups were served generous portions of both the airborne and freshly frozen products and instructed to eat all the beans they desired, being free to eat from the serving that satisfied them most. In every instance all of the airborne limas were eaten, whereas only small portions of the frozen product were consumed. Without exception the airborne product was distinctly preferred. Under constant refrigeration, the beans were delicious a week after arrival and merchantable 10 days after receipt by plane.

I hope these examples make it quite clear that not all perishables can benefit to the same extent from air shipment. To be sure, development of air freight is not waiting on research. Sporadic experimental commercial shipments are now being made and are likely to increase during the coming year.

Among the first commercial air shipments of fresh produce were plane-loads of California spinach flown into the Midwest at a season when good quality spinach was being harvested within short trucking distances. Fresh white dates from Arizona, not well-known to consumers, were also flown East.

Such random shipments, even at the 26 cents per ton-mile rate now offered by certain of the airlines, run the risk of violating certain cardinal principles of perishable cargo operation and are likely to prove a disappointment.

Shipments of commodities should not be based in any part on the expectation or the hope of finding curiosity sales. To further the sound development of this business, a shipment must benefit the consumer sufficiently to

make her willing to pay a price that will cover the added costs of transporting and distributing airborne merchandise. Any lack of responsibility on this score by grower, airline, or distributor would not only be poor business, but would make dupes of American consumers.

Our experience has shown us that certain problems will be met which can be solved only by the airlines and the food industry itself—growers, shippers, and distributors.

Since established distributors are not as yet set up to handle air shipments, I suggest that the airlines might find it necessary to assume at the outset a part of the responsibility for sound decisions in procurement.

Growers, likewise, must learn to pick produce carefully at a stage best suited for air delivery. The aircraft industry must build planes giving proper attention to ventilation, refrigeration, stowage, and economy in handling. Distributors must streamline their merchandising and handling techniques and the produce industry must devise means for adequately supervising the procurement of airborne commodities.

I might well raise the question as to what are the characteristics of a commodity best suited to air shipment and what are the cardinal principles to bear in mind when weighing the matter of an air shipment.

In the light of our experiences, a strong candidate for air shipment is likely to be:

(1) Of relatively high market value so that the cost of transportation is not a disproportionate part of the retail price;

(2) Either so perishable that it loses value so rapidly that it cannot easily be marketed far from the point of production; or an item which, through field-ripening, shows marked superiority over the same product picked green and transported by ordinary methods;

(3) Sufficiently commonplace or effectively promoted so that enough consumers will appreciate its superior quality to insure prompt sale;

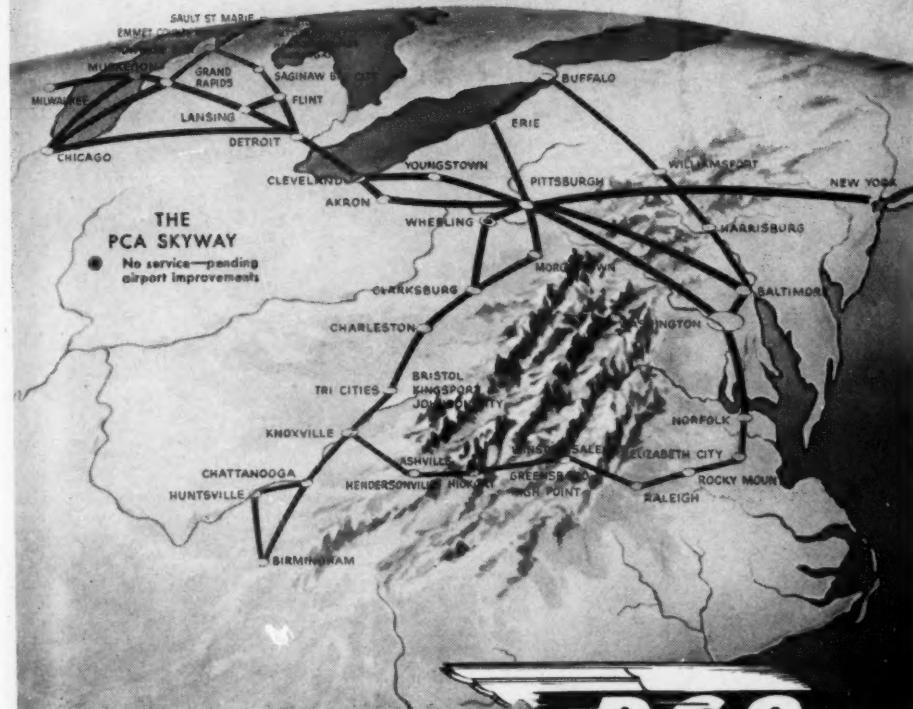
(4) Of high uniform quality, attractively packaged, shipped when absolutely fresh, and conspicuously identified as airborne.

An overall guiding principle is that perishable commodities must benefit sufficiently from the speed of the airplane to compensate for the added costs of air transportation, and permit all the business and commercial enterprises supplying the service to obtain a satisfactory return for their services. Rewards for its development, however, will not lie in profits alone, but also in the opportunity for genuine public service in terms of improved national health and a more abundant life for the American people.



IN 1944 PCA PLANES FLEW 101,000,000 PASSENGER MILES

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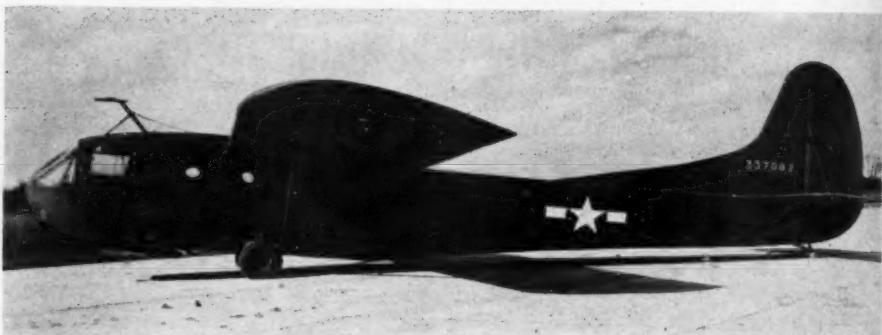
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GLIDERS: *Amer*

Changes on CG-4A Give Birth to New Glider, CG-15

Waco Executes ATSC Design Resulting In Increase of Useful Load and Speed



AMERICA'S NEWEST GLIDER—Close examination of the Waco CG-15A glider is not required to detect the family resemblance to the CG-4A. The changes, suggested by the ATSC and carried through by Waco, involved a strongly reinforced nose section, clipped wings, and an improved landing gear. The CG-15A is the fourth big American glider to go into production during World War II.

THE useful load of the CG-4A glider has been increased 500 pounds with the introduction of the new CG-15A, a motorless transport bearing a strong family resemblance to the former. Changes in the CG-4A, proposed by the engineering department of the Air Technical Service Command, Army Air Force, at Wright Field, Ohio, and executed by Waco, involved a strongly reinforced nose section, clipped wings, and a landing gear with improved shock-absorbing characteristics—the result of which is the CG-15A.

According to the ATSC, the CG-15A's tow-speed has been upped to 180 miles an hour. This is 30 miles an hour better than the CG-4A's performance. Better crash protection is provided in the new glider.

An externally braced high-wing glider with fuselage of steel tubing, the CG-15A has a framework covered with cotton fabric, and wings and tail surfaces of wood. It has a wing spread of 62 feet, 2½ inches and an overall length of 48 feet 9¾ inches.

Large enough to accommodate 16 men, including the pilot and co-pilot, the glider can carry an alternate 4000-pound load of rolling mechanized equipment. Heavy or bulky equipment is loaded through the nose, which opens

like a giant mouth to receive the airfreight.

The nose of this AAF fledgling is one of its most dramatic features. Sealed with clear vision panels it affords greater visibility and more convenient controls as well as greater crash protection for the pilot and co-pilot than provided in the CG-4A.

Reduction of the power required to tow the glider at speeds exceeding 100 miles an hour was accomplished by clipping 20 feet from the wing span of the older glider, making the CG-15A more suitable for towing by fighter planes. Flaps were added to counteract the effect of the shortened wings on the stalling speed of the new motorless transport, which approximates that of the CG-4A.

American and British

Britain Claims World's Biggest Glider in Hamilcar

Designed to Carry Heavy Cargo, It Can Transport a Payload of 17,500 Pounds

DECEMBER'S AIR TRANSPORTATION reported on the new XCG-10A glider, a "pollywog" with a wing span of 105 feet, 67 feet long, and capable of carrying a payload of 12,000 pounds. Developed by the Glider Branch of the Air Technical Service Command Aircraft Laboratory at Wright Field, Dayton, Ohio, it was described as the biggest motorless transport in the Army Air Force.

But then there is the *Hamilcar*—Britain's contribution to super gliders! The *Hamilcar*, which weighs 36,000 pounds fully loaded, is a product of General Aircraft, Ltd. It is Britain's proud successor to the *Hotspur*, and it is being hailed as the "largest wooden aircraft ever constructed."

The *Hamilcar*'s overall length is 68 feet—just 12 inches longer than the XCG-10A. Its wing span juts five feet beyond that of the big American glider, while its payload reaches 17,500 pounds—5,500 pounds more than the United States Army Air Force's biggest!

The difference between the *Hamilcar* and the three models of the *Hotspur* is tremen-

dous. Where the latter's all-up weight (weight of craft plus load) is 3,600 pounds, the *Hamilcar* reaches a figure exactly 10 times higher. In use by the Royal Air Force at the present time (it served in Normandy and later at Arnhem), its peacetime potential as a giant cargo carrier looms importantly.

It was in early 1941 that the general lay-out for the *Hamilcar* was finalized; this after many preliminary conferences and design studies. At that time a decision was made to construct a half-scale flying model. One hundred and twenty men were employed in the job—100 draughtsmen and 20 technicians—with the resources of the Royal Aircraft



WORLD'S BIGGEST—A seven-ton Tetrach tank rolls out of the Hamilcar, British glider, claimed to be the world's largest. Capable of carrying a 17,500-pound payload, the Hamilcar's all-up weight is 10 times higher than the Hotspur.

GLIDERS: American and British—(continued)

BRITAIN

establishment and the National Physical Laboratory thrown in.

The prototype was designed and constructed in 12 months. Successful test flights were made in the Spring of 1942, these were completed in three weeks.

According to information received here, the *Hamilcar* is designed to carry heavy armored vehicles, or combinations of vehicle equipment. "For this to be done with structural and aerodynamic efficiency, it was necessary to select a wing loading much greater than anything previously contemplated for a glider—21.7 pounds per square foot—and the aircraft took on itself more the character of an

aircraft without engines as opposed to the popular conception of a lightly loaded sailplane of prewar years." One of the outstanding characteristics of the *Hamilcar* is its ability to land within a confined space.

Because of its size, a four-engined bomber is required to tug this biggest of gliders.

Its designers state that "the decision to design the *Hamilcar* as a high wing monoplane with a nose opening door was to insure that, with the aircraft lowered on skids, armored truck vehicles could be driven straight out without needing special ramps. They could, therefore, be in action in as little as 15 seconds after the aircraft had come to rest."

AMERICA



ARCHETYPE OF THE CG-15A—Here is the Waco CG-4A glider whose design inspired the building of the CG-15A. Its wing span is 20 feet longer than the new glider, but its useful load is some 500 pounds less. The CG-4A's top tow speed is 150 miles an hour as compared with the CG-15A's 180 miles an hour.

Despite admitted shortcomings, the CG-4A, which spearheaded the invasions of Sicily, Burma, Normandy and Holland, set a pattern of achievement as well as one of construction for the CG-15As. Much of the success of the Sicilian campaign has been officially credited to the work of the men airborne over Sicily in July, 1943, by a fleet of 139 Waco CG-4As. Landed with ammunition, howitzers and jeeps near the bridges south of Syracuse and Catania, the men cleared the way for a lightning drive.

March of 1944 saw CG-4A gliders again in the headlines. This time they proclaimed the invasion of Burma—an even more spectacular glider achievement than the Sicilian show. Here, in the north-central Burma jungles, the Waco CG-4As landed American engineers and British assault troops 200 miles behind the Japanese lines. This daring and successful campaign was carried out where airplanes could not have landed, and where paratroopers could not have carried with them the bulldozers and other heavy equipment which

carved out badly-needed landing strips within 24 hours after the landing.

In June of last year the CG-4A gliders again went into battle—this time in Normandy. Wave after wave of the motorless transports carried tons of troops, vehicles, and equipment to vital points during some of the most critical days of the battle of liberation.

When the First Allied Airborne Army invaded Holland on Sunday, September 17, 1944, in the greatest airborne operation ever conceived and executed, the CG-4As formed part of the 300-mile long train of planes and gliders. This time the aerial freight cars landed men and materials at Eindhoven, Tilburg, Nijmegen and Arnhem.

Impressive though these achievements have been, engineers of the ATSC at Wright Field believe that the smooth performance of the new CG-15As will assure them an even more prominent place in the headlines of 1945. In addition, the development is another step forward to the future in which motorless transports are expected to play an important part.

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AIR-PORTATION NEWS

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Aviation Writers Hear Royce Hit McCarran Bill As Disruptive to Foreign and Domestic Policy

ALEXANDER B. ROYCE, chairman of the Airlines Committee for United States Air Policy, told members of the Aviation Writers Association meeting in New York on January 31 that legislation designed to create a single airline for America's international air transport would completely disrupt the existing foreign and domestic policy established by Congress in the Civil Aeronautics Act of 1938.

Spokesman for 17 airlines, Mr. Royce lashed out at the legislation introduced by Senator Pat A. McCarran of Nevada which would create an all-American flag line into which all United States international air transport operation would be merged.

He claimed that "the proposal now pending in the subcommittee on aviation of the Senate Commerce Committee ignores basic facts and disregards authoritative opinions on American international air policy. Mr. Royce stated that Americans "have a vital stake in any proposal which would sacrifice the established principle of regulated competition in favor of a monopolistic one-company operation." The following three points were struck by the speaker:

"(1) The United States already has an established policy covering international air transport. It is a policy of 'regulated competition' under the Civil Aeronautics Board and was established by Congress when it passed the Civil Aeronautics Act in 1938.

"(2) Proponents of single-company operation in United States over-ocean air transport ignore the testimony of authoritative Government officials. Among those who have recorded their opposition to this type of international policy are former Secretary of State Cordell Hull, Secretary of War Henry L. Stimson, Secretary of the Navy James Forrestal, Acting



Alexander B. Royce

Secretary of Commerce William A. M. Burden, and Attorney General Francis Biddle.

"(3) The national security will be served best through a policy of vigorous, reasonably regulated competition among a number of air transport operators and the aircraft manufacturers who compete for their business. This has been attested to by both the Secretary of War and the Secretary of the Navy in letters to Senator Josiah W. Bailey, chairman of the Senate Commerce Committee."

Opposed to the "chosen instrument" policy are All-American Aviation, American Airlines, American Export Airlines, Braniff Airways, Chicago & Southern Air Lines, Colonial Airlines, Continental Airlines, Delta Air Lines, Eastern Air Lines, Inland Air Lines, Mid-Continent Airlines, National Airlines, Northeast Airlines, Northwest Airlines, Pennsylvania-Central Airlines, Transcontinental & Western Air, and Western Air Lines.

'Chosen Instrument' Report

It was reported on February 6 that a Senate Commerce Subcommittee studying postwar international aviation policy submitted to three executive agencies a report favoring the "chosen instrument" plan opposed by 17 airlines. Although not adopted finally at the time it was made known, it is understood that many subcommittee members—possibly a majority—were for adoption.

The report was frankly tentative, but it favored a "minimum" of overseas airline operators as the best method of meeting foreign competition, assuring commercial success, and serving foreign policy. Stress was put on the fact that regulated monopolies exist in telephone, telegraph, and other public utility fields.

Rules on Haire Awards Announced by NAA

EQUAL consideration will be given to all ideas or achievements, large or small, contributing to the nation's airport development, according to the National Aeronautic Association which has announced the rules governing the Andrew J. Haire Airport Awards. A total of \$7,500, broken down to 13 cash prizes, is being offered.

Stressing that the Andrew J. Haire Airport Awards of 1945 were established especially to stimulate ingenuity and initiative right at the "grass roots," the rules as revealed by NAA set up two general classifications as a guide to contributions to be considered. Under the first classification, Airport Development, are included planning, promotion, financing, construction, engineering and material and equipment. The second classification, Management, lists field operations, flight operations, field and building maintenance, financial operations, personnel management, service, community and customer relations, merchandising, advertising and publicity, and revenue producing ideas.

Any individual or organization, including members of the armed forces both here and overseas, is eligible for this competition, except those listed below.

Not eligible for the prizes are civilian employees of the Federal Government, or employees of the Haire Publications, whose president is the donor of the awards, and paid employees of the National Aeronautic Association. Awards will be made only for work entered into and completed between January

1 and September 1 of this year, and entries should be postmarked not later than September 1. Winners, to be selected by a committee of judges appointed by the NAA, will be announced not later than November 1.

The awards are broken up into 13 prizes: first, \$5,000; second, \$1,000; third, \$500; and ten of \$100 each.

"It is not the intent of the awards directly or inferentially to lean toward the already famous or highly placed executive," Mr. Haire said, "but openly and impartially to include for their full face value all contributions to the airport development program, however small and from whatever source, excluding Federal employees."

Airfreight Project Group Organized by American

THE organization of the Airfreight Project Group, which will handle the technical phases of American Airlines' airfreight program, has been announced by Otto E. Kirchner, director of aircraft engineering for the line. The new group will devote its time to the problems associated in loading and unloading *Airfreighters*, packaging, and preservation of perishable cargo.

Named as project engineer of the group is R. H. Murray who has been with AA since 1939 in Maintenance and Engineering Departments. Assistant engineer for the group is A. C. Botsford, and a technical staff complete the nucleus of the Airfreight Group. Already originated by the airfreight engineers before formation of the group is the DC-3 *Airfreighter* interior which recently went into American Airlines' service carrying 1,200 pounds more payload than a normal passenger interior and 350 pounds more payload than any other cargo airplane in domestic airline service.

A cargo conveyor has also been developed for speeding loading and unloading operations, and a dress container for 47 dresses which weighs only 17½ pounds, as compared to 147 pounds for a comparable surface shipping container, is their first packaging answer. Shippers are now considering the adoption of the container for surface as well as air shipments.

Mr. Murray came to AA shortly after graduation from Casey Jones School of Aeronautics in 1939. One of his assignments has been the high altitude research project which AA conducted for the United States Army from 1942 to 1944. Other assignments included liaison engineer, power plant engineer, and project engineer-special projects.



STIMULATING INTEREST—William R. Enyart (left), president of the National Aeronautic Association, discusses the rules governing the Andrew J. Haire Airports Awards for 1945 with the donor who is offering \$7,500 in 13 cash prizes to be awarded in the Fall of this year.

NEWS and VIEWS



ON THE DOTTED LINE—Herbert C. Gerlach, executive of Westchester County, New York, signs the concession agreement which turns over the management of the new \$4,000,000 Westchester County Airport to the North American Airport Corporation. The concession is for the duration and for 15 years thereafter. Left to right are Edward C. Rowe, president of the North American Airport Corporation; James C. Harding, Westchester County's Commissioner of Public Works; Mr. Gerlach; Richard H. Levet, chairman of the Westchester County Board of Supervisors; and Milton N. Weir, assistant to the vice president of Gulf Oil.



SALUTE TO AN AIR TRAVELER — Louis Leverone (right), chairman of the Illinois Aviation Conference as well as chairman of the Aviation Committee of the Illinois Postwar Planning Commission, is greeted by UAL President W. A. Patterson as he logs his millionth mile of air travel. Since 1925, when he made his first flight between Chicago and New York, Mr. Leverone, in domestic terms of distance, has made approximately 334 transcontinental crossings.

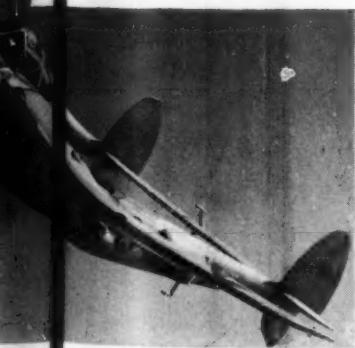


ASSOCIATED MEMBERS—Howard (right), Washington representative of solid lines, accepts a certificate in behalf of the association which entitles it to associate membership in the Airlines Association. Harry R. Smith, chairman of the Membership Committee of the FAA, is on the right. Howard, chairman of the Membership Committee of the Airlines Association, is on the left.

IN THE ARMY NOW—Her four propellers whirring, this C-54 Skymaster poses just before the take-off on American Export Airlines' first transatlantic flight for the Air Transport Command last month. AEA's contract with the ATC replaces the one with the Naval Air Transport Service which was terminated after more than two years' operation due to changing military needs.



NAKED LIGHTNING—The eighteenth of the famous Lockheed Lightning, the P-38L, is now doing better 425 miles per hour. Its combatiness has been increased through laminar air compressibility flaps, aileron booster control, and a supercharger device. It can carry a load of 4,000 pounds, which is 25 percent greater than the P-38's pre-model. Maximum range with drop tanks is 3,000 miles.



ERS—H. C. Tafe (right), representative of Consolidated-Vultee, on behalf of the company which is a member of the Federal Aviation Agency, R. Shultz (left), president of the Flying Club, while Beverly E. the Membership Committee, looks on.



THE ASCENDER TAKES A BOW—A fast and highly maneuverable pusher-type plane, the XP-55, also known as the Ascender, is Curtiss-Wright's newest experimental craft. Developed for the Army Air Forces, it is a low wing, all-metal, tail-first, single-engine, single-place pursuit plane. Numerous advantages are claimed, especially for war duty. Work on the Ascender's development started as far back as the Spring of 1939. It was first flown at Scott Field, Illinois, on July 13, 1943. This is the first picture to be released by the War Department.



CLASS IN AIR FREIGHT—Students of the air traffic class of the Academy of Advanced Traffic, New York, visit a TWA hangar at La Guardia Field. The academy is offering a specialized six-month training program with special emphasis on air transport and its application to the carriage of freight and express. Among the members of the faculty for the presentation of this course are George Bauer, International traffic analyst; Ralph Starkey, air express manager of REA; S. E. Russ, regional traffic manager for TWA; Dr. John B. Crane, of the Glenn Martin Company; and Dixon Speas, assistant to the vice president of AA.



NAZI NEMESIS—This quartet of smiling pilots—all veterans of the famed Fighter Cock Squadron—were on hand to accept a flaming red fighting cock from the thousands of men and women of the Republic Aviation Corporation. Their original mascot, Uncle Bud, was killed in action in the Mediterranean theatre. Uncle Bud II is deep in the war by now. The fighting cock on the cowling of the P-47 was painted by Milton Caniff, creator of "Terry and the Pirates."

LEGAL NOTES on Air Transportation



By GEORGE BOOCHEVER

Chairman, Legal Committee, Aviation
Section, New York Board of Trade

ONE of the fundamental questions of the law of air transportation is that of the right to air, as an easement. In that connection, it may be considered as settled law that there is no exclusive right, which a court of law will recognize, to access, or flow of air, passing over a neighborhood. To quote an English authority: "Such a right like the right to light, is one that is common to the neighbors, and is a natural right annexed to the soil belonging to each owner, and cannot be acquired by one to the detriment of another."

Trespass, which may be defined as a direct or intermediate interference with a person's rights or possessions, has another aspect. In relation to the air it may be considered from these two points of view: (1) interference with a person's right to a free passage of air; (2) the exercise of rights in the air effecting the land or the goods of another.

There can be no trespass interfering with a person's rights to a free passage of air unless the owner is able to prove his absolute rights to the free passage of air which has been interfered with, which is, as above stated, limited to the free flow and passage of air in a strictly defined area or channel.

The old common law rule as to trespass to land is that it takes place when there is a direct interference with its possession; for example, one who walks over another's land without leave or license, irrespective of the reason therefor, is guilty of a trespass. A forced landing by an airplane upon another's property is a trespass, and it is no answer to an action that it was involuntary, or by mistake, or a necessity. Every continuation of the trespass is a fresh trespass and an action may be brought in respect of it.

The British Air Navigation Act of 1920 (Sec. 9, Subsec. 1) provided that: ". . . No action shall lie in respect of trespass by rea-

son only of the flight of aircraft over any property at a height above the ground which, having regard to the wind, weather and all the circumstances of the case, is reasonable, or the ordinary incident of such flight, so long as the provisions of the Act and any order made thereunder are complied with, but where material damage or loss is caused by an aircraft flight taking off or landing, or by any person in any such aircraft, or by any articles falling from any such aircraft to any person or property, or land or water, damages shall be recoverable from the owner of the aircraft in respect of such damages or loss, without proof of negligence or intention or other cause of action, as though the same had been caused by his willful act, neglect or default, except where the damage or loss was caused by or contributed to by the negligence of the person by whom the same was suffered."

There is a proviso, however, that an owner of an aircraft shall be entitled to recover from the person causing the injury, if it was a person other than the owner or some person in his employment, and permitting the joining of such person as a party defendant, with the reservation, that if not so joined, such person shall not be precluded from disputing the reasonableness of any damage recovered from or paid by the owner.

The pollution of the air by a user thereof may give rise to an action of nuisance. Such a nuisance may be either public or private. The purity of the air and perhaps even its use in a manner found to be objectionable by reason of excessive noise, and undue disturbance thereof may likewise give rise to a case of nuisance.

The Civil Aeronautics Act of 1938, Title I, Sec. 3, dealing with "public right of flight" reads: "There is hereby recognized and declared to exist in behalf of any citizen of the United States a public right of freedom of transit in air commerce through the navigable air space of the United States."

The public right of flight is also set forth in the Uniform Aeronautical Code and is a matter of statutory enactment in practically every state in the Union.

Flight in low altitudes, however, still gives rise to conflicts with the owners of the property affected, and the invasion of private property is still trespass and may constitute a nuisance. Whether actionable or not is always to be determined by the special facts in each case.

There are no fixed heights or limitations. The liability, if any, is based on the specific circumstances on which the claims are made. In the next month's issue the leading decisions on the subject of the foregoing article will be discussed.



Milestone in Metallurgy

In 2,000 B.C., man alloyed copper with tin to make bronze.

In the 14th century, craftsmen fused iron with carbon to make steel.

In the 19th century, man first successfully welded one ferrous metal to another.

Today, as a result of Fairchild engineering and research, *man can now join aluminum to steel!*

Through its application to aircraft engines—the chemical bonding of aluminum to cylinder barrels—Fairchild engineers have been able to achieve far more rapid dissipation of heat—greater development of horsepower without increasing piston displacement. The Al-Fin cylinder is being

used exclusively on all higher-power Ranger engines.

The future of the Al-Fin principle in aviation and other heavy-duty industries is assured.

It also has wide possibilities in the consumer field—refrigerators and radio tubes, motorcycles, family planes and autos. In appliances for home, office, factory and farm, the Al-Fin process can effect decided improvements.

As you consider their magnitude consider what makes them possible—the research and engineering of an organization whose credo is "The Touch of Tomorrow in the Planes of Today."

BUY U. S. WAR BONDS AND STAMPS

RANGER AIRCRAFT ENGINES

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SOMETHING NEW IS ADDED



Last month a Customs Office was established at La Guardia Airfield in New York. This was a new "first" in the field of commercial aviation. The author explains in interesting detail the reasons for the move and how streamlining has saved days in clearance.

By HARRY M. DURNING
Collector of Customs, Port of New York

ON January 16, 1945, there was established at La Guardia Airport a customs office designed to operate under the supervision of a deputy collector of customs as a separate, complete and streamlined unit where imports and exports carried by air can receive every necessary phase of customs treatment. The establishment of such an office, the first of its kind, resulted from recognition of the requirements of an air-minded public, from anticipation of the tremendous expansion of civil air transportation immediately after the war, and from a conviction that the Port of New York is destined to play a principal role in the future of aviation in this country.

Military necessity has brought about extraordinary development in all phases of the science of air transportation. Safe and economical air routes have been laid out throughout the world; cargo and transport plane design has reached high engineering levels; and transportation techniques in the air alone and in conjunction with surface carriers have been perfected. These achievements in connection with our war effort will have a pronounced effect on commercial aviation after the war. It has been predicted in an official government report that very soon transport planes in the 50- to 60-ton class will fly the skyways in quantity. One American international air transport company which did a total gross business of \$126,000,000 in 1943 is planning to add 100 modern, four-engine planes, twice as large as the 43-ton flying boats now in use. Everywhere is evidence of the bright future of air transportation.

The recent International Civil Aviation Conference in Chicago, fostered by this Administration and attended by representatives of most friendly foreign governments, is indicative of world opinion concerning the importance of air transportation in the postwar economic world.

A distinct postwar pattern for international air transportation is rapidly evolving, and in

this pattern we find the Port of New York holding a predominant position. Even now the air trade routes on many air maps converge on this port; and logically, for the New York district is the nation's business and trade center, the hub of traffic in foreign goods. In normal times, more than 50 percent of the nation's shipping and about 80 percent of overseas passenger travel pass through this port. It is expected that this proportion will be maintained with regard to cargo and passengers carried by plane.

The trend is apparent from records in the Custom House. In 1943 there were 2,422 arrivals of planes at this port from foreign places; in 1944 the number of such arrivals was 6,310, an increase of 161 percent. There were 32,610 incoming passengers with 38,116 pieces of baggage in 1943; the next year 85,770 passengers arrived with 154,887 pieces of baggage. Baggage requiring customs treatment on importation was increased by 300 percent. The number of passengers departing for foreign destinations from this port in 1944 was at least 400 percent greater than in the previous year. *In 1943 less than \$8,000 in customs duties was collected on air cargo and baggage at this port; in 1944 collections of duty amounted to nearly half a million dollars.*

Here, then, is an indication of the strides made at La Guardia Airport within the period of only one year and of the capacity of air transportation at this port to serve the traveler, shipper, and importer of the immediate future. Yet these figures, though impressive, do not present the true potential of air cargo. The volume of air shipments might have been far greater if more transport planes and space

priorities were available. Duty collections would have greatly exceeded a half million dollars in 1944 if much of the baggage and cargo were not entitled to free entry under special war legislation.

Revision Made Necessary

The phenomenal growth of customs business at La Guardia Airport soon made it apparent that organizational revision was necessary. It was noted that during the summer months of 1944 the frequency of arrivals and departures of planes requiring customs treatment was on an average of one in every 28 minutes, through the day and night. This tapered off to an average of one plane in every 40 minutes in December. Each plane carried from 10 to 58 passengers and cargo, and required substantial customs processing.

Special customs treatment, adapted to the peculiarities of air transportation, is required in connection with every arrival and departure to and from the United States. This is true also of purely domestic flights, if imported goods are carried under bond for customs clearance at another port. Only men specially equipped by training and experience can perform satisfactorily the functions necessary to proper conduct of customs business at the airport, and, in the face of the sudden and vast increase of airport activity, the force skilled in this work was found to be inadequate. Consequently, the limited number of available men was compelled to work long, hard hours, often without sleep or rest.

Individual hardships and general administrative difficulties resulting from this situation caused the authorities grave concern. In addition, there was the element of overtime pay, always a troublesome subject. For customs services performed after 5 p.m. but not during a regular tour of duty, or on Sundays or holidays, at the request of any private interest, the law requires that customs officers and employees shall receive overtime compensation at certain prescribed rates, such compensation to be reimbursed to the government by the private interest involved.

There were other deterrents, too, to the most effective operation of La Guardia Airport as a landing field for imported goods. Of those the most serious was the fact that formal entries, where necessary, were required to be filed at the Custom House and the merchandise to be examined and appraised at the Appraiser's Stores. It was necessary for importers, or their brokers, to secure bills of lading or carrier's certificates from the airlines after arrival of the merchandise, to prepare the entries at their own offices, to file the entries and deposit estimated duties at the Custom House, and to secure permits with which to return to the airfield and obtain delivery from the carrier. Even after issuance

of the permit, the shipment or that part of it designated for examination was transferred to the Appraiser's Stores in Manhattan and actually delivered only after examination and appraisement.

Consider the delay incident to these transactions. La Guardia Field is 13 miles from the Custom House and nearly as far from the Appraiser's Stores. There is no direct train, bus, or streetcar service, and customs personnel, importers, brokers, and others having business at the airport must allow themselves travel time of about two and a quarter hours for the round trip. Thus, although merchandise arrived by plane in less than a day, clearance through customs could not be effected for two, three, or more days. Speed, the principal advantage which air transportation has to offer, was seriously impaired.

Remedial measures were plainly necessary. The obvious solution, a "self-contained" customs unit and 24-hour per day service at the airfield, was not at first practicable for the volume of customs business did not warrant the expense, but the ultimate establishment of such a unit was seen as inevitable. Hence, while successive steps were undertaken to overcome particular and immediate problems, they were planned always with an eye toward a permanent customs office at the airport.

Training Course Instituted

A course of practical instruction in airport procedure, requiring attendance in classroom and at the airfield, was instituted for the training of more than 100 customs inspectors and other personnel. This training created a pool of skilled men upon which to draw in emergencies—and emergencies became more frequent as air transportation grew. When, finally, the Bureau of Customs authorized the establishment of tours of duty around the clock, it was possible upon short notice to increase the regularly assigned personnel at the airport by 150 percent.

There is now complete customs coverage at the airport. Personnel are assigned to duty in three shifts of eight hours under an arrangement calculated to make maximum service possible with a minimum drain on manpower. The number of men assigned to each shift was determined after careful study of the volume of business at different times of the day so that there are sufficient men, but not too many, on duty at all times. There is no waste of manpower.

Simultaneously with the authorization to install regular tours of duty, the Bureau of Customs granted permission to accept formal entries and to clear shipments at the airfield. This was the last necessary measure in the formulation of the first complete customs establishment for the sole accommodation of air transportation. On January 12, 1945, a

formal release out of my office notified importers, brokers, carriers, and others concerned that "for the purpose of expediting the transaction of customs business and for the convenience of importers, brokers, and carriers an office under a Deputy Collector in Charge, will be opened at the Sea Plane Base, La Guardia Field, on January 16, 1945." Business at the airport is to be conducted as nearly as possible as though it were a separate port of entry.

Every type of entry, except a warehouse entry, may be filed at the airport, and in most cases all procedures necessary for the release of the merchandise can there be completed. Though, for the present, warehouse entries will not be accepted, no undue delays or complications should result since the very intention of warehousing merchandise indicates that haste is not required in its delivery from the airport. However, plans are under way for the construction of a customs bonded warehouse at the airfield and when this is accomplished warehouse entries will be accepted.

In the case of merchandise entered under various forms of consumption entry, it is now possible to complete all customs formalities and obtain delivery within one hour after ar-

rival of the importing plane. However, shipments covered by formal entries, with respect to which detailed and complex appraisement procedures may be necessary, will still have to be transferred for examination to the Appraiser's Stores. But even in such cases, the speed-up system installed at the airport will save from 48 hours to several days.

Improvement is most obvious in the "in-bond" procedure. Imported merchandise relayed through La Guardia Airport to other ports or to foreign countries can be cleared for transshipment, with proper cooperation on the part of the importer or his agent, in about the time it takes to physically transfer the goods from the arriving to the departing plane. Thus, a shipment which this morning left Bermuda, let us say, can be flown to La Guardia Field and transshipped under an I. E. or T. & E. entry with such celerity as to arrive in Montreal tomorrow.

Presently prescribed practices aimed at the acceleration of all customs procedures at the airport were meticulously planned and they appear to be functioning well. Nevertheless, they are regarded as experimental, to be tested by experience and by the requirements of large-scale air transportation anticipated in



A MOMENTOUS FIRST—This is the scene which presented itself when the first entry for delivery of over-ocean air cargo was completed at the newly-established Entry Office of the United States Customs Service in the marine terminal, La Guardia Field, New York. The initial items to be processed were vital airplane parts consigned to Pan American Airways. The office was established to provide speedier processing of imported commodities—the first of its kind within the Government organization—and now serves domestic and international airlines as well as the military services. Shown (left to right) are Patricia Rice, division clearance foreman for PAA; Daniel McDonald, entry clerk; Joseph J. Burton, deputy collector for Customs; and Joseph H. Ricci, PAA representative.

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the near future. Plans for improvement are constantly going forward.

All planning for the future must take into account the great municipal airport now under construction at Idlewild. It is estimated by Mayor La Guardia that national passenger and cargo flying will increase 300 percent as soon as planes and personnel are available, and that in five years after the war there will be 900 schedules (arrivals and departures) a day from and to all parts of the world. The mayor states that this is only part of the ultimate planned capacity of Idlewild. This portends vastly expanded customs activities. But we are forewarned, and, with the newly installed airport customs office as a nucleus, will be well equipped to protect the revenue, to render every required customs service, and to cooperate in the development of this nation's air commerce.

REGULATIONS

Office of Deputy Collector LaGuardia Airport New York, N. Y.

1. For the purpose of expediting the transaction of customs business and for the convenience of Importers, Brokers, and Carriers, an office under a Deputy Collector in Charge, will be opened at the Sea Plane Base, LaGuardia Field, on January 16, 1945. The available space for this office is very limited and hence certain restrictions on the procedure to be followed must, of necessity, be adopted.

2. The U. S. Appraiser has also arranged to assign an Appraising Officer to full-time duty at the Airport office.

3. Until further notice, the Airport office will be open for transaction of customs business from 8:30 a. m. to 5:00 p. m., daily, except Sundays and Christmas.

4. Bonded seals and blank forms, including saleable forms, must be procured in the Supply Section, Room 328, as at present. They will not be available at the Airport office for sale or distribution to regular carriers, importers or brokers. Blank forms will be supplied without cost to persons who are unfamiliar with customs procedure—for use on pending transactions only.

5. All types of import entries, except warehouse and warehouse withdrawal entries, will be accepted there, and receipts for duties, etc., paid will be issued. Warehouse and rewarehouse entries must be filed in the Entry Division, and warehouse withdrawals in the Warehouse Division, as at present—at least until a bonded warehouse is established at the Airport, for the storage of merchandise that may be so entered. However, Combined Rewarehouse Entry and Withdrawal for Consumption on Form 7519 will be accepted at the Airport office in appropriate instances. Note paragraphs Nos. 13 and 14.

6. Importers or brokers may elect to continue filing all of their entries in the Entry Division as at present. For those who do so elect, there will be no objection to their using the Customs motorized messenger service for the delivery of permits, etc., to the Airport office—with the distinct understanding that the privilege is to be exercised at their own risk in the event of delays, errors, etc.

As it will be necessary to send invoices and appraisement entries filed in the Entry Division to the Airport if the merchandise is to be examined and appraised there and since they must be dispatched via the regular messenger service, it is obvious that a substantial saving of time will result—if such entries are filed at the Airport office.

7. Consumption, Appraisement, Six-Months' Bond, Permanent Exhibition, Baggage and Transportation in Bond entries filed at the Airport office will be numbered in separate series of numbers from similar entries filed in Room 248. Entries will be numbered thus:

Dutiable Consumption—"AIRPORT 1," "AIRPORT 2," etc.

Free Consumption—"AIRPORT 01," "AIRPORT 02," etc.

Temporary Importations—"Six Months' Bond AIRPORT 1," "Six Months' Bond AIRPORT 2," etc.

Immediate Transportation—"AIRPORT 1," "AIRPORT 2," etc.

Transportation and Exportation—"AIRPORT 1," "AIRPORT 2," etc.

Appraisement—"AIRPORT 1," "AIRPORT 2," etc.

8. For obvious reasons, if an appraisement entry is filed at the Airport office it must be completed there by doing all things necessary to secure the release of the merchandise.

9. The Collector's copies of formal entries will ultimately be routed to the Liquidating Division and will be available there for inspection by the importer or broker as may be necessary until they are tentatively liquidated and dispatched to the Comptroller.

10. Transportation entries (I.T., T & E, I.E., etc.) will be ultimately routed to the Entry Division, Room 248, and will be closed out and transferred to the Records Division in due course when certificates are received from other ports, etc.

11. Application for photostats or for any type of certificate relating to airport entries (i.e., landing certificates, certified copies, etc.) unless presented to the Deputy Collector at the Airport office while the entry or document is in his possession should be filed with the Deputy Collector in charge of the Liquidating Division for merchandise covered by formal entries; to the Deputy Collector, Entry Division for merchandise transferred to the Foreign Trade Zone or for merchandise covered by transportation entries; to the Deputy Collector, Warehouse Division for merchandise transferred to General Order Warehouse.

12. Bulletin Notices of liquidations of airport entries will be posted—as for all other entries—in Room 230, the regular bulletin room. No Bulletin Notices of Entries Liquidated will be posted at the Airport office. Lists of consumption entries will be available for inspection in the invoice and delivery section of the Liquidating Division, Room 406.

13. Entries will be accepted at the airport for all cargoes arriving from foreign places, via plane, either direct or as residue, unless the shipment has been transferred to a General Order Warehouse, in which event the entry must be filed as at present, in the Entry Division. If a General Order Warehouse is subsequently established at the airport, merchandise or baggage stored therein may be entered at the Airport office.

14. Entries will also be accepted at the Airport office for merchandise or baggage arriving in bond via air express or air freight, provided that the carrier's manifest, Form 7512 or 7520, has been delivered to the Collector's office at the Airport by the carrier and the shipment has not been transferred to the Railway Express Terminal on Thirty-third Street, or to a General Order warehouse elsewhere. When the carrier's manifest has been delivered to the Collector, the merchandise must not be moved to another terminal without his approval and an appropriate endorsement by the inspector on the carrier's copy of manifest. (Note: The delivery of the carrier's manifest, Form 7512 or 7520 to the inspector will be deemed as delivered to the Collector's office.)

15. For the present, entries will also be accepted at the Airport office for all cargo or baggage arriving on planes at Floyd Bennett Field or Mitchell Field. However, these entries may also be filed in the Entry Division of this office—if the importer or broker so prefers.

16. Certain limited types of imported merchandise (to be determined by the Appraiser) can be appraised and released from customs custody at the Airport. However, other types of merchandise (also to be determined from experience) will be transferred for appraisal to the United States Appraiser's Stores, 201 Varick Street, New York City, as at present.

17. Arrangements will be worked out later for the procedure to be followed in releasing the designated packages, whether examined at the various carriers' terminals at the Airport, or transferred to the Appraiser's Stores.

18. Protests and Appeals for Reappraisement should be filed as at present in the Liquidating Division.

19. Since this office has been established primarily for the convenience of all concerned and its efficient operation will benefit everyone, the help and cooperation of all is solicited to that end, i.e.,

(a) Carriers can simplify procedure by withholding delivery to the consignee of Bills of Lading, invoices, carriers' certificates, etc., until and unless all charges for freight, etc., have been satisfied. In this way the necessity for filing liens for freight, etc., may be avoided.

(b) Keeping the Airport office advised of anticipated arrivals and departures, number of passengers, changes of plans, schedules, etc.

(c) The public store cartman should arrange to promptly move cases designated for examination at the Appraiser's Stores.

(d) Brokers and importers making payment of duties, etc., by check should have them certified or else make payment in cash. They should take note of the fact that the banks close at 3:00 p. m. daily and at noon on Saturdays and are closed all day on various holidays and should be guided accordingly.

(e) Owners' Declarations filed subsequent to time of entry should be delivered to the Missing Document Section, Room 402, by the Nominal Consignee. Invoices and other documents missing at time of entry for which a bond was given should also be filed in Room 402, as at present.

(f) Powers of Attorney, Term Entry Bonds, Import Permits, Stipulations, License to Export, etc., which are filed in the Law Division, the Entry Division, the Marine Division, the Liquidating Division or elsewhere in this office, may be required in connection with transactions at the Airport. The importer, broker, or exporter, should arrange to have an extract or copy of such documents forwarded by the head of the division concerned, to the Deputy Collector in Charge of the Airport before filing the entry at the Airport. This arrangement should be made in sufficient time in advance to avoid delays and complications at the Airport office.

(g) When filing an entry that requires a consular invoice the original consular invoice must be used or the triplicate copy must be procured from Room 248. In the absence of either, the invoice used must bear the usual "No Triplicate Invoice Received" stamp.

(h) By preparing and filing a Permit to Release, Form 7500-B, with each consumption entry filed at the Airport office. The permit to release is not required or used in connection with consumption entries filed in the Entry Division—Room 248—as the Elliott-Fisher tickets are provided for use in releasing the packages designated for appraisal. The preparation of Form 7500-B will facilitate the release of packages designated for examination on entries filed at the airport. The Deputy Collector or Entry Clerk when releasing the public store package (or Clerks Behling or Steckle if the permit is to be issued in the Liquidating Division) can make whatever change in its context that is necessary—if any—at time of issuance.

(i) By promptly paying duties due on appraisal entries and making necessary supplemental deposits on consumption entries that may result from advances in value or rate—or from amendment of entry, etc.

(j) Carriers should provide adequate safeguards

for bonded freight and express. Lockers or cribs that can be secured with customs locks or seals should be provided for left-over passenger and crew baggage.

(k) Arrangements should be made to provide assistance in opening, unpacking, repacking, etc., packages to be examined and appraised at the Airport.

(l) Exercise patience until the procedure to be followed at the Airport has been perfected.

NAL Files Applications For Route Extensions

National Airlines has filed application with the Civil Aeronautics Board for an extension of route from Pensacola, Florida, to Philadelphia, Penna. Montgomery, Alabama; Atlanta, Georgia; Greenville, South Carolina; Asheville, North Carolina; Roanoke, Virginia; Charlottesville, Virginia; Washington, D. C.; and Baltimore, Maryland, will be stops en route.

In rendering the proposed service, the most modern available aircraft, suitable for this extension, would be used by NAL. The flying time from Pensacola to Atlanta would be one hour and 57 minutes, to Philadelphia seven hours and 45 minutes, if the airline's present equipment—Lockheed *Lodestars*—were used.

NAL further requested that the board grant to it the authority to serve such other intermediate or terminal points and such combinations of cities or routes in the area included within the application as the board may deem to be in accord with the public interest and public convenience and necessity.

The filing of another application asks permission to render mail, passenger, and cargo service to Rocky Mount, North Carolina, as an intermediate stop on NAL's Jacksonville-New York City extension.



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IT'S AN WORLD

REG. U. S. PAT. OFF.

By L. A. GOLDSMITH, *Economic Analyst, AIR TRANSPORTATION*

"THE world is my workshop and the sky is the limit" was the phrase I coined many years ago to describe my own work when I was a very young novice in world trade activities. As commercial aviation had not yet been born at that time, I was then speaking metaphorically

Wings Over One World and Its Significance Highlighted For Public in Town Hall Workshops

regarding the skyways. However, the sky as a ceiling for my aspirations had always seemed to me just about the right limitation! So my interest in aviation developed as a natural evolution.

Therefore it was also natural for me to become interested in the new series of workshops launched this season at Town Hall as an adult educational feature. There are several of these workshops on various topics, but *Wings Over One World* on the general subject of aviation has claimed my special attention. This is a discussion series given over a period of eight weeks from 8.15 to 9.15 Monday evenings during January and February, and is being handled superbly. As with all other workshop courses, they are under the general direction of Dr. Paul H. Sheats, director of the Town Hall Workshop Division.

The *Wings Over One World* discussions have as a presiding chairman, Dr. N. L. Engelhardt, Jr., who is director of Air Age Education Research. The audience at these aviation discussions would seem to be a cross-section of the young—and those not so young—as well as a goodly sprinkling of those technically interested in the aviation field. As for the speakers, whoever was responsible for their selection certainly did a swell job. All of them are outstanding, and are well known in their respective phases of the aviation industry or services, including the armed forces.

Some of the speakers and the subject of their talks are highlighted in this column. It is impossible to go into the details of all the lectures. Some of the speakers, other than those whose remarks are touched upon in later paragraphs, were: William A. M. Burden, Assistant Secretary of the United States Department of Commerce; Joseph T. Geuting, Jr., vice president of General Aircraft; Rear Admiral C. E. Rosendahl, Naval Airship Training and Experimental Command; William Littlewood, vice president engineering, American Air Lines; E. E. Wilson, vice chairman, United Aircraft Corporation; A. T. Colwell, senior vice president, Thompson Products, Inc.; Dwayne Orton, director of education, International Business Machines Corporation; Josh Lee, of the Civil Aeronautics Board; Commissioner George E. Stoddard, of the New York State Education Department; Herbert C. Clish, superintendent of schools, New Rochelle, New York; and P. P. Willis, consultant, Air Age Education Research.

Brigadier General Charles H. Caldwell, Chief of Staff of the First Air Force, inaugurated the first of the series of these discussions. He and Gill Robb Wilson, aviation editor of *The New York Herald Tribune*, spoke on the subject of "What will be the role and scope of American Military Aviation in *peacetime*?" Offhand that would

Public Understanding and Demand Will Create and Build the Age of Flight

seem to be a paradoxical title, but in reality it was an eye-opener, and kept the listening group engrossed from start to finish. In General Caldwell's talk he stressed over and over again that "an Air Force is not just a lot of airplanes or air strips on which to use and land them," but that an "air force is people." He also reiterated that "quality and quantity of aircraft is not the answer to our problem, but that *people are what really count*. An air force is a group of them, some in uniform and some in industry."

But—and this is the big BUT which has been hammered home from every variety of angle by all the speakers in all the discussions—there is need for a bigger and better understanding of

our aviation requirements by the *public*. In other words, it is again the people who must come to understand this question. For that matter, it is We, the People of the United States, who have the power to keep us right out in front with an ever alert and ever superior air force. We have the power of the vote, and it is up to us to let our Congressmen and Senators know what we want to have done, and have them find the means to do it.

General Caldwell stated: "Unless the general public has a sympathetic understanding of the need for maintaining our air equipment at the highest standards of operating efficiency, and the constantly changing and improvement pattern of the airplane, and its attendant appliances; indeed, unless the general public keeps before it the fallacy of false economy of being penny wise and pound foolish, *we shall disintegrate to the pitiable position of a second-class air power, which we were at the beginning of the war.*"

This is a very horrifying thought to contemplate but sadly true. We were a second class air power when World War II began. When President Roosevelt said we needed fifty thousand airplanes in any one year, a great many people shouted, "Impossible! Fantastic!" But the American people set to work and did the impossible; even doubling that "fantastic" goal. But as General Caldwell said forcefully, "to insure continued superiority in design and production of aircraft, both military and civilian, we must give full scope to American inventive genius."

General Caldwell believes that "one of the surest ways of achieving our goal in this connection is to make each and every American air-minded." As the general pointed out: "In the dark days of Munich, Hitler dictated terms, knowing how strong an air force was ready to back him up." Hitler also knew that Great Britain and France sadly lacked in air power.

General Caldwell further emphasized that "Germany's air-mindedness was accomplished by governmental decrees. Aviation subjects were forced down the throats of pupils in all the schools from the kindergarten up. Our way will be different. Our educators must provide an effective program which will insure proper indoctrination of our youth in the usefulness of air power."

And perhaps this is a good thought to stay with everyone, when we ponder on another vital factor brought out by the general: "Eternal research and development is essential to leadership for any nation. Conquest of the air knows no national boundaries, and *no nation has a monopoly on scientific discovery*. The fundamentals of the aeronautical sciences are available to everyone, allies and enemies alike, and whoever blends them most ingeniously into a given design holds temporary leadership."

Gill Robb Wilson also spoke at the same session as General Caldwell. Captain Wilson provided the listeners with an inspirational upwards-to-the-skies outlook on life. He slanted his ideas at what he termed "attitudes of mind" concerning the "conceptions of the Air Age."

Attitudes of Mind And Conceptions of Today's Air Age

He, too, expressed his own firm conviction that it was what the people and the public thought and said and did that counted in the development of our Air Age. Captain Wilson believes, too, that even beyond the technical possibilities of aviation developments the sociological implications brought about by this age of flight will be enormous and far reaching beyond comprehension at the present time.

For instance, the mental attitudes of people who will fly casually to Casablanca, or Cairo or Calcutta will affect their entire outlook in all directions. What may seem impossible to an "earthbound" individual is just all in the day's work for those of us having the "conceptions," which we will have as people with boundless horizons, over and above the stratosphere.

Captain Wilson spoke of a story he had heard while in Corsica on his recent trip abroad. (Incidentally, he speaks of Corsica as if this were just around the corner.) Two young American aviators on duty in Corsica think they have discovered a method which they believe may be able to stop a million deaths from malignant malaria in India, or possibly anywhere else in the world. The point that Gill Robb Wilson was getting at, was that because of their experience in the air and their aviation work, these boys envisioned a *global* job of cleaning up the world. Their horizons had widened to the extent that *Wings Over One World* was an actual reality to them, not just a phrase or slogan.

Listening to Captain Wilson, it begins to dawn upon one's consciousness that all our 135 millions had better realize right here and now that we are already living in the Air Age—and had better be liking it too—or else! We shall indeed know that *it's an air world* when we feel the full force of the Air Age's motivating thought processes. This Air Age consciousness will

become more and more apparent to everyone when the military aviation personnel come marching home; up and down the Main Streets of the nation. At the present time there are approximately three and a half million in the Army and Navy Air Forces. Aviation is in their blood. They will want to see to it that an aviation "transfusion" becomes part and parcel of the fibre and being of all Americans.

Another of the significant topics discussed at the series, *Wings Over One World*, was "The Development of World Air Transportation and the Significance of the Civil Aviation Conference." This was handled with the experienced background, know-how, and basic understanding of such men as Edward Warner, vice chairman of the Civil Aeronautics Board, and Charles A. Rheinstrom, vice president of American Airlines. Some of Mr. Rheinstrom's expressions of thought keep recurring even now: "There is more pioneering ahead of us than behind us" . . . "Our ability to create the airplane has outraced our ability to use it; future possibilities are unlimited" . . . "Air is the common possession of all people all over the earth. Not enough of us in America are of the Air Age. Too many of us are still earthbound" . . . "We have landlocked nations but we have no *airlocked* nations" . . . "The airplane—man's first vehicle to travel *anywhere* from *anyplace*."

Another one of the discussion series was covered by the first-hand experience of Captain R. K. Baker of the Air Transport Command. He has not only flown the Hump several times, but also the routes of the American Airlines Division of the ATC, including the North and South Atlantic, India, and Trans-Africa. Captain Baker

showed his own motion pictures of his various flights. It was more than ample "seeing is believing" evidence that airplanes fly *anywhere from anyplace*. It fairly makes one's head spin with the implications evoked by such pictures. After the war there need no longer be groups of people shut in by what used to be inaccessible regions of the world, because of impassable mountains or non-navigable rivers.

By means of the airplane these people are within a few hours' flying distance from one or many of the highly developed world centers of commerce and culture. It means the end of isolated peoples or regions—if the aviation and government leaders of the world have the *will* and the vision to bring the use of the plane within the purchasing power of everyone, everywhere. Only then will the possibility of flying anywhere from *anyplace*, take on its real world significance from every angle—political, economic, personal, and military.

Summing it all up, here is my own personal reaction to the various angles discussed in *Wings Over One World*: If aviation is to fulfill the glorious promise of its potentialities, which undoubtedly can be that of a basic foundation as a future design for living, it must accomplish two major factors: Become the dominating force to keep the peace of the world; and, at the same time, give to the people of the world *an economic solution*, which will permit them to have the price to pay for and enjoy the miracle of aviation's magic carpet of communication and transportation from *anyplace to anywhere*.

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Extensions, Denials Handed Down in Rulings by the CAB

The Civil Aeronautics Board has extended Mid-Continent's Route No. 26 south from Tulsa to New Orleans via the intermediate points Muskogee, Fort Smith, Texarkana and Shreveport subject to a restriction that service between Shreveport and New Orleans shall be limited to that provided by flights originating or terminating at Kansas City or points north thereof, and at New Orleans. As presently certificated Route No. 26 extends from Tulsa through Kansas City, Omaha and Huron, where it splits into two segments, one terminating at St. Paul-Minneapolis, and the other at Minot, North Dakota. In addition, MCA is certificated over Route No. 48 between Kansas City and the Twin Cities via Des Moines.

The Board also added Joplin as an intermediate point on Route No. 26 between Kansas City and Tulsa. Joplin is presently served by MCA on a temporary basis. In order to permit direct flights between Kansas City and New Orleans, MCA was authorized to omit stops at Tulsa and Muskogee on flights between the former points when the traffic warrants such a direct operation. In the same opinion Continental Air Lines was authorized to provide service to Bartlesville, Oklahoma, as an intermediate point between Tulsa and Wichita Falls.

Applications by Delta Air Corporation and National Airlines for routes between Kansas City and New Orleans by way of various intermediate points have been denied.

TACA de Colombia Wins Permit From Colombian Government

TACA de Colombia, associated with TACA airline with headquarters in Bogotá, has been awarded an operating permit by the Colombian Government, and probably will begin flying scheduled routes this month with two Douglas transports and one twin-engine Beechcraft now being overhauled and refitted in the United States.

TACA de Colombia is 55 percent owned by Colombians and 45 percent by TACA Airways, the system's parent company in which the majority interest is U. S. owned. Chairman of the Board of TACA de Colombia is Eduardo Lopez, a prominent Colombian who is not unknown in the United States. A. Gómez Picón, former Minister of Posts and Telegraphs, holds the post of manager.

AA Passenger Rates Due For 6% Drop Next Month

A general reduction of six and one-half percent in passenger fares throughout American Airlines' national and international system is expected to become effective early next month, according to a statement by A. N. Kemp, president of the airline.

He declared that the decision was made "some time ago as the result of a continuing study of our rates," and that greater efficiency was obtained through "many new operating methods and improved maintenance procedures." Savings were made despite higher wages and higher prices for materials and supplies, Mr. Kemp said.

AA Cracks LaGuardia Field Air Mail Record by 27 Tons

An all-time record for air mail carried in any one month out of LaGuardia Field by a single airline was established in December, 1944, by American Airlines, it was announced. The total of 481,673 pounds outstripped the previous record of 427,348 pounds carried in October of last year.

The same month also witnessed several other achievements in New York City air transportation history. On December 7, 30,500 pounds of mail were carried by American Airlines, the highest total for any single day by an individual airline since LaGuardia Field was opened. This record was broken on December 20 when nearly 33,000 pounds were shipped by the same airline and on January 4, this month, another new high was set when 37,300 pounds were flown. These totals compare with an average day when approximately 20,000 pounds are carried.

Hawaiian's Report Proves 1944 Far Better Than 1943

Hawaiian Airlines was quite up to snuff during the past year, chalking up substantial increases both in air freight and air express.

Carrying more than five-and-a-half million pounds of air freight in the 12-month period, Hawaiian reported an increase over 1943 by 21.54 percent. Although not nearly so much air express was transported, comparison with 1943's record showed a gain of 45.4 percent.

Spot analyses proved that more than one-third of the total poundage carried consisted of fresh fruit and vegetables. In the order of volume, the other commodities were clothing and suitcases, motion picture film, foodstuffs (meat, fish, etc.), daily newspapers, household effects, auto and machine parts, drugs and medicines, livestock, and yeast.

International Air Express Attains Its Highest Peak

According to the Air Express Division of the Railway Express Agency, international air express hit a new high in 1944 with 248,519 shipments—a 43.4 percent increase over 1943—when 173,200 shipments were handled. Shippers paid upward of \$900,000 in express charges on this traffic as against an approximate total of \$610,000 in 1943, indicating a jump of about 47 per cent. Both incoming and outgoing traffic are included in these totals.

Chicago-Detroit Nonstop Flights Started by PCA

Pennsylvania-Central Airlines has inaugurated daily nonstop service between the war-busy cities of Chicago and Detroit.

The Civil Aeronautics Board, which recently awarded this route to the Capital Line, granted on February 1 its authorization for the airline to begin operations. Ten days later, PCA scheduled 12 daily flights between Chicago and Detroit. Seven of these are nonstop flights continuing from Detroit direct to eastern industrial capitals. Remaining flights serve the Michigan cities of Muskegon, Grand Rapids, Lansing, and Flint.

Realism Is the Word!

Here is a swift-moving article which sweeps across the immense canvas of postwar air travel with deliberate emphasis on great potentialities. Well-armed with facts and figures, and running the gamut of problems and expectations, the writer states that "tomorrow's ships should be built around the passenger and cargo, instead of fitting the passenger into the ship."

By FRANK DAVIS

Secretary-Manager, East Michigan Tourist Association



[Mr. Davis' article is based upon his own report on the effect of postwar aviation on pleasure and vacation travel, which was included in a special book of 20 surveys published by the National Association of Travel Officials. S. V. Saxby, Hotel Duluth Building, Duluth, is secretary of the organization.—Editor.]

TOO many people today still feel that commercial airplane flight is a romantic, danger-spiced adventure. If you are one of those doubting Thomases, I am asking that you set aside your inhibitions and look at the picture as objectively as possible. There has been too much crystal gazing, and not enough realism in postwar thinking about aviation. Although the outlook is encouraging, there are factors that can increase or retard the furtherance of aviation.

Here they are: The aircraft industry has had little opportunity to accumulate reserves of capital for peacetime conversion. Unless contract termination with the Government is adjusted in a fair-minded way, and with dispatch, many companies might not be in a healthy position for immediate conversion.

Another unknown is: *How will the average man take to the airplane?* Combined domestic airlines carried 500,000 passengers in 1931, and four million 10 years later; but no one knows where the leveling off process begins.

Inventions and development is an imponderable. It is conceivable that one invention might alter the picture overnight, and there is no doubt that the pressure of war has already brought about many radical changes in air travel usable in peacetime.

Other questions are: *What will the American Standard of Living be after the War? Will the average man be able to afford the semi-luxury of air travel? Will we still chop away with the tax axe at the Luxury margin of the American Standard of Living?*

Aereopolitics is the last factor. Tremendous pressure is being exerted by established lines,

surface companies and new organizations for their share of profitable routes. The CAA has on application bids for about 500,000 miles of routes, and it will have a huge delicate problem in awarding these routes. Stifling monopolies and unregulated competition must both be avoided. If the air routes are set up entirely on a cartel or monopolistic basis, no play will be given to competition which often bears fruit in terms of better service to the public. If the CAA goes to the other extreme, we will have a preposterous duplication of routes, such as Europe had before the war.

Many people believe that the airplane industry will soon be working at full capacity during peacetime. This is not true. Before 1941, aviation employment ranked 36th in the nation, and now ranks first with three million workers. Burnet Hershey, in a book called *The Air Future*, estimates that total peacetime output will be about 11 percent of peak output during the war.

After these preliminary remarks, I propose to discuss three topics: Commercial Aviation; Helicopter-Bus Service; Private Plane.

The lower the cost, the more people will take pleasure trips by air.

Passenger fares averaged eight cents a mile in 1930, and most of the airlines lost money,

and nearly all of them would have gone to the wall if they were not subsidized by carrying the mail. Three years later six cents per mile, and now 4.9 cents. During this period, carrying the mail has changed from a subsidy to a service. Four cents a mile is likely very soon after the war. And Pan American Airlines, with new clippers is planning to offer a fast air service to South America at fares as low as three-and-a-half cents. PAA also plans to fly to New York to London in 10 hours with a fare of \$100.

Rates compare favorably to other modes of commercial travel. In 1941, airlines got an average of 5.1 cents a mile, and furnished meals; Pullman charged an average of 4.3 cents a mile; coach 2.2 cents; and bus 1.7 cents.

Vacations and Speed

Speed is an important consideration for vacation travel. It is so important that out of 27,163 air travelers interviewed by mail by AAA, 67 percent stated they would pay extra for speed if two hours could be saved on an eight-hour trip. One hundred and ten miles per hour was the average in 1930; 180 miles an hour today to 250 miles per hour in the immediate postwar period, and probably 300 within three or four years.

Not long ago, a man made out his will and kissed his wife in fond farewell when he took a trip by plane. This questioning attitude toward safety is fanned by the enormous publicity given plane accidents. A man may slip in his tub and break his neck, thus rating a few lines in the local newspaper, but if this same man crashes to his death in an airplane, it often makes the news syndicates.

Here's the story: In 1936, there was one fatal accident in every 8,000,000 miles flown. In 1941, one man died in every 33,000,000 miles flown. *It is safer today to step into a commercial airplane than to venture upon the highway in an automobile.*

The question of whether or not the airlines will take over the business of Pullman and a share of the bus and coach business cannot be easily predicted. Today, 14 are traveling by air for every 100 that take Pullman. However, *every new means of transportation generates additional travel that never existed before.* This has been historically true. For example, if a person can afford to take three days from his business to spend one day in San Francisco, he would take airplane. If he has to use slower means of travel, he would not make the trip at all.

In 1941, the Interstate Commerce Commission revealed that the distribution of all passenger miles of commercial travel to be the following: Air—four percent; Pullman—30 percent; Rail Coach—39 percent; Bus—27 percent.

The airlines figure looks insignificant. Let's see how it eventually got up even that high.

From 1935 to 1939, travel by air increased about 19 percent each year. In 1939, the increase was 42.2 percent; 1940—64.2 percent, and the first six months of 1941 domestic airlines flew more miles than any full year prior to 1939. In five years the total passenger miles nearly quadrupled. The latest figure I have been able to obtain shows a rise of 24.5 percent for the first five months of 1944 as compared with the same period in 1943.

This latter figure is startling when it is considered that the airlines loaned considerable number of planes to the Army.

In fact, it is only recently that the volume of travel was sufficient so that the domestic airlines started to earn a little money. In 1935, airlines showed a total deficit of over \$3,000,000 with a gross revenue of nearly \$23,000,000. In 1940, this jumped to a gross revenue of over \$59,000,000 with a net income of over \$5,000,000.

Well, where do we go from here after the war is over, as far as passenger miles is concerned? Right now, domestic airlines are flying about 80,000 miles. As of last November, domestic route applications with the CAB totalled well over a quarter of a million miles. This figure reveals only that there is a great interest in future development, but no true indication of what the mileage will actually be when the CAB awards routes.

After the war, foreign travel to the United States will boom. The airlines have the greatest force of public relations with men in the world building good will for visiting this country. I am referring to millions of GI Joes scattered all over the globe telling the world about our country. Consequently, interest is aroused and many people from foreign lands will come by plane, especially those in the upper income brackets, and those who can afford unfavorable rates of exchange.

The war has also caused interest to run high for travel to foreign nations—to visit places where friends and relatives have visited and fought. The war has stimulated curiosity to an enormous degree. (See *Time's survey in Airdom*, Page 49.)

What countries interest Uncle Sam's post-war pleasure travelers? The British Isles rank first; Continental Europe second; South America third; Russia fourth; Asia Minor fifth; the Orient sixth; Australia and the South Pacific seventh; and the Balkans eighth.

That the prospects are bright for an increase in foreign plane travel is obvious because the CAB has on file applications for over a quarter of a million miles of new transoceanic routes—about the same figure as domestic applications.

This stimulates our thinking about the promotion of vacation and pleasure travel. Where we perhaps thought in terms of local advertising

ing and some national advertising to promote our regions, we must plan on additional travel and vacation advertising *international* in scope. We must maintain and strengthen the friendly contacts throughout the world built with our allies. To centralize this international advertising, and continue our friendly contacts, the travel interests need a strong national promotional and advertising organization to sell the vacation and travel allure of the United States at home and abroad.

The Michigan Tourist Council has gone on record officially endorsing the revival and strengthening of the United States Travel Bureau to do this job.

The field of postwar speculation (liberally mixed with fantasy) on what commercial passenger aviation will be like after the war is at the point where many writers get their feet off the ground and their heads in the clouds. But here's something definite:

On April 27, 1943, AAL presented a probable postwar fleet to the American Society of Engineers. In my opinion, this imaginative fleet will approximate the type of ships the airlines will have two or three years after hostilities cease.

Three Plane Types

There will be three types of passenger planes. The first will be a Deluxe Pullman of the air, a four-engine ship, seating 100 day passengers and sleeping 52. This ship will cruise at 266 miles per hour, and will fly from New York to San Francisco, with three stops, in 11.47 hours. It will fly most of the time above weather disturbance. It will be compartmented, including a full height lounge with maps, altimeter and other instruments to permit the amateur flyer to follow the course. The meals will still be brought aboard, but a larger number of passengers will mean a greater choice of menu. Dinner will be served on china, and there will be a small kitchen for snacks. A smoking room and bar are in the plans, as well as roomy dressing rooms for men and women.

Pressurized cabins will reduce air sickness by providing oxygen as needed. Television, radio and air conditioning will be installed. This ship will have a range of 2,400 miles.

Ship Number Two is the Flying Coach, which will compare with the better class coach travel on the railroads. This ship will be about one-third smaller than the deluxe job, but it will be a four-engine plane with coach seats for 75 passengers. It will cruise at 260 miles per hour, and will have a maximum range of 1,200 miles. Both ships will fly the main trunk lines with the coach making more stops, and taking about an hour and three-quarters longer to get across the country.

The baby of the fleet will be the passenger

cargo-plane—two-motored with a convertible bulkhead capable of carrying 52 passengers, or seven tons of cargo, or combinations of both. This ship will be designed to land on smaller landing strips, and will operate as a feeder to the trunk lines.

The unofficial opinion is that fares of the deluxe ship will be about four cents a mile, and about two cents on the coach. This would make possible a \$60 coach fare from New York to San Francisco.

On Giant Ships

There has been much publicity on proposed mammoth ships capable of 200 to 300 passengers. The general feeling among the airlines is that these giant ships would be unsuitable for domestic travel, inasmuch as they could operate more efficiently with smaller ships departing more frequently. In fact, the public does not favor them. A resounding 84 percent stated no. A few big ones, however, might be used for transoceanic travel.

How many planes would be required by the airlines after the war? Surprisingly few. In the pre-Pearl Harbor days, 360 planes carried the load. According to the CAB report of last November, estimates of the number of planes required by the airlines vary between 1,000 and 5,250 averaging twice the size of present equipment.

Can bombers and transport planes be converted for peacetime use? These planes are overpowered, and much too costly in operation to be commercially profitable. They were constructed with a radically different purpose in mind. "Tomorrow's ships should be built around the passenger and cargo, instead of fitting the passenger into the ship."

It is probable, however, that some of the Army and Navy planes will be converted only to bridge the gap during reconversion. The military planes most likely to be used for this purpose will be the *Constellation*, the *Consolidated Vultee 39*, the *Douglas DC 7*, the *Mars*, and probably some of the others.

Immediately after the war, commercial aviation will go right ahead by the temporary use of these converted planes and the airliners now loaned to the Army, until new models are available.

Before the war, an embryo business providing taxi air service was just coming into existence, serving hunters and fishermen desiring to go into rather inaccessible areas. There is no doubt that this service will expand, and that every major metropolitan area will provide taxi service through private companies that will see this opportunity.

Although it hasn't progressed much beyond the talking stage, some of the major airlines are planning all-expense pleasure flights into

regions with adequate landing fields, and enough drawing power to justify special trips during the tourist season.

The domestic airlines are still in no position to enter mass transportation. It has been estimated that 90 percent of the population of the United States has no direct access to an airline.

Only a very large city can maintain and construct an airport capable of servicing and handling the large-sized planes used at present by the airlines, or the larger ones contemplated in the future. The potential passenger business would not justify the expense. Even the smallest plane proposed by American Airlines is about *twice* the size as the 21-passenger Douglas used today.

The greatest hope for encouraging mass transportation by air lies in the helicopter. This weird contraption is nothing new. Leonardo de Vinci first drafted plans for one in the Fifteenth Century, but only recently it has been refined to the point where it is practical, mainly through the inventive genius of William Stout, Igor Sikorsky, and Colonel Frank Gregory, experimental pilot. The helicopter differs from the autogiro in that it has no propeller to pull it through the air and kept in the air by the blades of its rotors. It

does have a small propeller in the rear to overcome the twisting effect of the rotors.

A helicopter can stop quicker in flight than an automobile operating on pavement with four-wheeled brakes. It can fly straight up, straight down, backwards, forward and sideways. It can hover motionless in the air. It can land in your backyard or on water. Gusts of wind affect it very little. If its motor fails, it comes to earth at about the same speed as a parachute. It is much slower than an airplane, cruising at about 110 miles per hour.

The bus industry proposes to establish a multi-scheduled helicopter bus service operating between bus stations in the downtown sections of approximately 1,000 cities and towns, and coordinate this service with highway bus transportation. As evidence of their earnest intention, 70 bus companies have filed application with the CAB for 49,130 miles of routes—the largest application made by any group.

Bus executives do not pretend that this helicopter service would be in operation within a short time after the last shot is fired. They would set up a few experimental routes to iron out the "bugs" and set their costs, before they would jump into any national set-up.

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Manferd Burleigh, President of Great Lakes Greyhound, states, in support of an integrated air-bus service: "If it were necessary to develop a complete new organization to provide helicopter service, the greater capital investment and operating costs eventually would have to be absorbed by the public." He points out that great savings could be made because the bus industry could use their present garages and maintenance crews for repair work; their bus stations can be converted to serve as landing spots for the helicopter; and, lastly, he points out that ticket and service personnel would not need any duplication for the same group could handle both businesses with very little training.

One of the big problems of the airlines is the amount of time consumed in reaching and leaving the landing field. Because of the need for acreage and clear space, most airports are located a considerable distance from the city. From Chicago to Detroit, 120 minutes are spent in the air. It takes an average of 50 minutes to go from downtown Chicago to the airport, and 40 minutes to reach downtown Detroit from the City Airport. Thus, a total of 220 minutes' travel time is needed, 45 percent of which is ground travel. This situation is true of most of our major cities. With commuting helicopter service operating between the airport and town, much of this travel time could be eliminated.

Not too much is known about the helicopter by the general public. This is largely due to military secrecy, since many of the improvements were made after Pearl Harbor, and the helicopter is already being used in substantial numbers by the armed forces.

It is no secret, however, that the Army has developed a successful seven-passenger helicopter now in active use. Nor is it concealed that a 14-passenger twin-engine ship is now on the drawing board—a model of which already has been approved. Greyhound, in addition to smaller ships, is now making plans for the design of a 40-passenger helicopter which would match in carrying capacity our present motor buses.

The effect of helicopter bus service on the vacation industry would be enormous. There are only a few large resort towns capable of supporting an airport to handle airliners. The vast majority of resorts are located in small communities unable to afford such a construction program, or else are located in hilly or mountainous terrain. *For the first time, these resort communities will have direct access to commercial air travel.*

Although CAB has not acted as yet on the bus industry's application, and a national system of helicopter-bus may not be put into operation for quite a few years—even though 90 percent of war helicopters can be converted—it is time to think about what this change

would mean to resort operators. For one thing, there will be a new market for hunting and fishing camps, and resorts off the beaten path of present commercial transportation. It will allow for more time for enjoyment of a vacation because transportation time will be reduced. It will make possible weekend vacations at private cottages and resort establishments several hundred miles away. It will enlarge the size of potential vacation markets, necessitating changes in advertising media, both as to the appeals and to the distribution areas.

Private flying is in a position similar to the automobile of 1918. At that time, because thousands of doughboys learned to drive automobiles and trucks, great impetus was behind the automotive industry until it reached the point as the nation's leading prewar industry. At present, there are 3,500,000 of our sons in the Air Corps. Three hundred thousand are trained pilots. The training of these pilots is the biggest factor in encouraging private flying after the war.

It is almost impossible to guess the number of private planes required after the war. Charles Stanton of the CAA certainly should



HAM AND PENICILLIN—Three hundred pounds of that miracle drug, penicillin, went out in a hurry by Pan American Clipper to Bermuda, the British Isles, Portugal and West Africa. At the marine terminal of La Guardia Field, Cargo Supervisor Max Kaplan provides temporary storage for the valuable drug in refrigerated quarters usually reserved for sides of meat and other foodstuffs. Note the table rarity hanging from hooks in the wall.

be in a position to estimate. He says that there are now about 25,000 private planes and 3,000 airports to serve them. In four years after the war, he predicts a total of 300,000 civilian planes and 6,000 airports. The CAA has recommended to Congress improvements on 1,625 of the 3,086 airports now existing, and the building of 3,000 additional airports for private planes.

After the war, it still looks as if the private plane will be in the luxury class, unless costs are reduced substantially. Unless a successful combination airplane is placed on the market, it is still necessary to own an automobile. This combined plane and auto is now being designed by William Stout. Perhaps it will succeed.

A survey conducted by Edward G. Doody and Company for Parks Air College was aimed at six percent of the financially able section of the population. A summary of over 1,000 interviews showed that 78,000 plan to pay \$1,500 for a postwar plane; 119,000 prefer a private helicopter and another 78,000 don't know what type they prefer. Thus, there is, according to this survey, a potential market of 275,000 who would pay 1,500 or more for an aircraft after the war. It seems to me that \$1,500 is a mighty low figure.

It is interesting to note the stumbling blocks to the purchase of private aircraft, according to this study. In order of their im-

portance: fear, no need; physical handicaps; high cost; no facilities. This survey proved what most of us would naturally guess. Two-thirds of prospective plane buyers would use their planes and 'copts for pleasure. Of those who plan pleasure flights, a larger number appeared to be fishermen, either lake, stream or deep sea.

How soon will planes be available to the public after the war? There is no hope of converting a fighter plane for pleasure travel. It is overpowered, overarmored and ruinously expensive. Observation planes of the "grasshopper" type, however, can be converted. Although no figures have been released on the number of these planes, I have the impression that the number turned over to the public will be relatively small.

Because there will not be enough planes to bridge the gap during the time aircraft manufacturers are shifting to the production of peacetime small planes, there will probably be more of a lag in private flying immediately after the war than there will be in commercial aviation.

Improvements and inventions are being made regularly that will greatly increase the safety, speed, and, above all, the economy of the private plane. If other factors keep pace, it might well be possible within a few years after the war that the objective of 300,000 private planes will be reached.

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PIONEERING THE HELICOPTER

IN his book, *Pioneering the Helicopter* (McGraw-Hill, \$2.75), Charles L. "Les" Morris has contributed distinctively to the literature of aviation. Its greatest points are its simplicity of style, which has brought the subject of the helicopter down from the lofty technical ledge and into the lap of the layman; its sincerity, which has not permitted the author's enthusiasm for the helicopter to benight the reader to the problems awaiting solution; and its first-hand information, which in any man's language is an adequate asset.



HELICOPTER IN ACTION—A gob is "rescued" from a rubber raft in one of the first pick-up tests of the Vickers hydraulic hoist. The helicopter hovers over the raft as the seaman is pulled safely into the craft. Piloting the "heely" is Commander F. A. Ericson of the United States Coast Guard, who is mentioned in "Les" Morris' *Pioneering the Helicopter*.

Mr. Morris has told a spanking good story of the development of the first successful helicopter in the Western Hemisphere. Igor I. Sikorsky is, of course, the hero of the book, and the author has done well in his depiction of the Russian-born flier and inventor as possessed of the remarkable qualities of courage and stick-to-it-iveness.

Profusely illustrated with photographs, the reviewer found one of special interest to him: an old test stand which gave the basic information for the VS-300. "Its shaft was the rear axle of an automobile. The transmission was the automobile's differential. V Belts carried the power from a motorcycle engine to the single-bladed rotor."

In his chatty, chummy way, Mr. Morris proceeds through the pages of *Pioneering the Helicopter* without losing sight of the dramatic possibilities of what might be passed over by other writers as incidental. There was a paragraph or two on the pronunciation of the word, helicopter, and the author treated it in this manner:

"... Mr. Sikorsky used a long e — 'heel-i-copter.' He liked to call his ship the *heely* (spelled heli), and it would have bordered on the profane with a short e as in 'hell.' Gregory (Col. H. F. Gregory, then a lieutenant) maintained that the short e was correct, and subsequent reference to Webster and other sources supported his contention. The word stems from the Greek *helix*, meaning 'spiral,' and *pteron*, meaning 'wing.'

"Lexicographers can correctly point out that all derivatives from *helix* use the short e (helical, helicoid, etc.); those from *helios*, meaning 'sun,' are long (heliotrope, heliometer, heliocentric, etc.). Nevertheless, the fact re-



Charles L. Morris

mains that those experts, including even Mr. Webster, never produced a *hellicopter* that would work, whereas Mr. Sikorsky has made a very successful *hellicopter* . . .”

A typical bit of American drive is captured in the story of a telephone call from Wright Field. Ordering a demonstration of the XR-4 before an Army board, Gregory wanted to prove that the helicopter had precision control, assorted speeds (40, 60, and 80 miles an hour), and altitude. Said Gregory:

“. . . We at least ought to get the ship over the tree-tops. I’d like to see it up to 500 or 1,000 feet anyway. But, of course, 5,000 feet would be excellent!”

Sikorsky and Morris protested that they hadn’t even “found out yet how she handles in autorotation, when the engine quits,” and that there was plenty of investigation work to be done on forward speed. But the date was set for the following month. And when it rolled around, the Sikorsky helicopter passed “its official debut with flying colors.”

There is a chuckle on one of the pages when the author relates how an innocent control-tower operator, sitting in his glassed-in room 50 feet above the ground, was thrown into a near-panic when he suddenly found himself staring into the eyes of “Les” Morris who calmly sat in his motionless helicopter only a few feet away, on the other side of the glass.

He has no patience with those who would predict the postwar price of the helicopter and pleads for sanity when one approaches the subject.

“To begin with,” he asks, “can you confidently assert what a dollar will be worth after the war? Will a pair of shoes cost \$6 or \$2 or \$20—or perhaps even more? Will a low-priced car still sell for \$800?”

Mr. Morris joined the Bendix Helicopter organization a few weeks after serving as engineering test pilot for Mr. Sikorsky since 1941. In his new capacity he is operating as director of field operations. From 1931 to 1941, Mr. Morris served as the Commissioner of Aeronautics for the State of Connecticut.

CHINESE AIR FUTURE AIDED

THERE are at least two principal schools of thought in this country on the staggering problem of China. Each is supposedly authoritative, but each disagrees with the other. One faction maintains that a country which failed to progress beyond the Fifteenth Century cannot become an important angle of the modern design overnight, so to speak. The opposing faction declares with equal positiveness that a studied application of modern principles of economics, education, science, and art, will do the trick.

Whatever the merits of each argument, it must be stressed that not all Chinese bend their ambitions towards their age-old irrigation ditches and rice paddies. An interesting example of this is the group of 13 young Chinese now taken under the wing of Trans-continental, Western & Air.

All of them are nationals of China and are in this country through arrangements made between the Government and TWA officials. They are here to learn how to build and operate a commercial transport airline to meet the peacetime needs of their country. When you get down to bedrock, it is just another indication of how peace-loving countries work in that spirit of cooperation so vital to good international relations.

At the present time the dozen-plus-one are busy getting accustomed to this vibrant thing called America. Tucked away in a corner of a Kansas City apartment hotel, these chaps are being taught the English language by a specially assigned instructor, I. V. Larson, of the North China mission. When this is accomplished, their names will be added to the TWA payroll at the regular scale of wages. The lads will work in the Maintenance, Operations, Traffic, and Engineering Departments.

Their names? Well, here goes: Chi-Chang Tso; Huan-Tang Kwong; Chao-Tsan Meng; Wei-Kao Chang; Pao-Kang Yuan; Ping-Shieh Hsu; Nai-Ning Chen; Yen-Sun Chuang; Chi-Fan Yang; Kwang-Chen Chow; Juin-Shi



THE NEW CHINA—These Chinese nationals, hand-picked by Generalissimo Chiang Kai-shek for the job of picking up the American “know-how” in commercial air transportation, are under the wing of TWA. None is a stranger to flying; five of the group are pilots.

Guh; Ding-Chung Kao; Tseng-Pan Wei.

No erroneous impression should be gained which would place these Chinese in the class of amateurs. All have been fighting and bombing the Nips even before the famed American Flying Tigers zipped into action. Five of the group are pilots. 'Nuff said.

Aviation is their game and they mean to stick to it. It seems safe to say that an air-minded China will be brought considerably closer to the great countries of the Occident. How long it will take the Giant of the East to bestir itself and shake off the accumulated cobwebs of the centuries, this column will not attempt to forecast. But if the 13 with TWA are representative of a fair proportion of present-day China's youth, then, perhaps, the negative critics may be very, very mistaken men.

TIME'S FOREIGN TRAVEL SURVEY

IT will be recalled that Dr. J. Parker Van Zandt of the Brookings Institution, in his excellent book, *Civil Aviation and Peace*, predicted that some 4,000,000 Americans with incomes ranging from \$3,000 to \$10,000 will

have the opportunity to make bargain plane trips overseas every year. (See issue of November, 1944.)

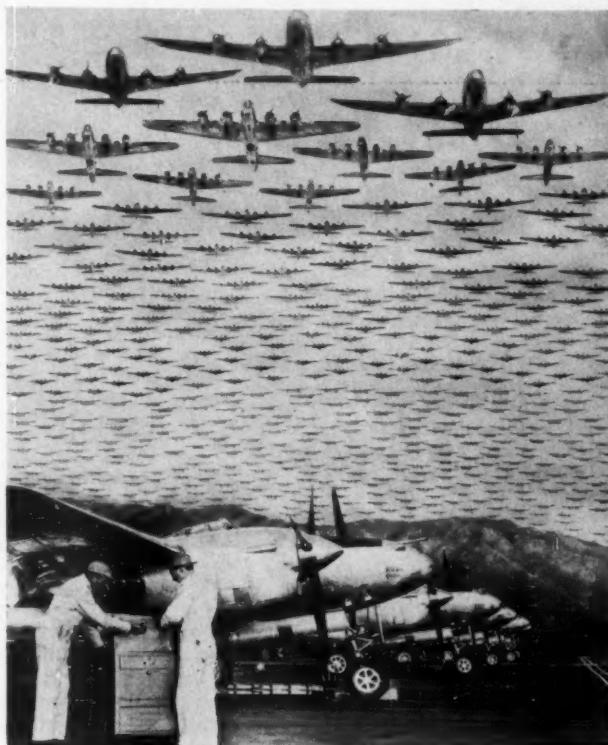
Dr. Zandt was so logical in his arguments that, indeed, it seemed as if plane-clouded skies must follow close upon the downy tail of the dove of peace—not warplanes, but planes filled with tourists and businessmen and cargo. Of course, Dr. Van Zandt placed the time within 10 years following the termination of the war, appended to which statement was the forecast that war technological improvement and operations in volume would scale the air travel rate down to three cents a mile.

Recently *Time Magazine* polled its readers (whose incomes are "twice the average of the average United States family's income") on the subject of foreign travel after the war. No method of travel was specified in *Time's* questionnaire; but with the definite accent on air travel as pointed up in other surveys, it seems fair to assume that a healthy proportion will utilize the airplane.

Of the more than million readers of the magazine, 204,000 have been to England, 89,000 to Hawaii, and 61,000 to Alaska. But it is the "someday" planners who form an extraordinarily interesting group. A "some-

THE PLANE-BLACKED SKY

—This is a composite photograph specially prepared to illustrate less than one month's output of warplanes from the Lockheed Aircraft Corporation in Burbank, California; but it serves also to point up the soon-to-come day when the plane will become the favorite transport for the postwar tourist, business man, and shipper. Shown in this photograph are the Constellation, the Lightning P-38, the Navy Ventura, and the B-17.





AIR-TRAVELING SALES-MAN — Gordon Verrier, brief case in hand, is about to enter his two-seater on a business trip as Edward Lubischer, a friend, stops to chat with him and say so long.

day" planner? He is the one who usually says: "Yes, sir! Someday I'm going to visit the South Sea Islands . . ."

Top choices in a long list of popular goals abroad were the three territories mentioned in the preceding paragraph; but of the three, Alaska was preferred by those who "someday" intended to visit it. Actually, 348,000 *Time* readers intend traveling to "Jack London's land." England was second with 310,000 planning to go there, and Hawaii third with 304,000.

The regional summaries likewise produced interesting results. For example: 252,000 have been to Europe and 482,000 want to go; 99,000 have been to the Pacific and 397,000 want to go; 470,000 have been to Canada and 361,000 want to go; 86,000 have been to South America and 354,000 want to go; 274,000 have been to Central America and 348,000 want to go; 197,000 have been to the West Indies and 277,000 want to go.

According to *Time*, eight out of every 10 families reading the magazine travel for pleasure, while six out of 10 say that their business necessitates travel. In the former category, the postwar traveler must choose between an extended ocean cruise with a relatively shorter stay at the goal and a swift flight through the air with a relatively longer foreign visit. The plane offers the business traveler speed.

Few of those polled expect to leave the United States "within the next five years." Some 310,000 expect to go to the Pacific Coast, with the Rockies, New England, and Florida following. Those planning to take immediate trips listed Mexico, the Canadian Rockies, Alaska, Cuba, and Quebec.

The average response to a *Time* survey is 30 percent. It is noteworthy that the periodical's foreign travel questionnaire brought response from 45.8 percent of the readers.

THE FLYING SALESMAN

NOW take the case of a quite modern young man—Gordon Verrier of Long Beach, California—who is employed by Breeze Corporations, Inc., of Newark, New Jersey. Verrier, a service engineer, is in every sense of the word an air-traveling salesman. (We sense a new, fertile field for jokes.)

No auto, bus, or choo-choo for him. Verrier tosses his case of wares—aeronautical accessories, in this instance—into his plane, and he's off. He flies a small, two-seated craft, which cruises at 90 miles per hour.

Speed has paid off handsomely. His short trips are normally of two days' duration; that is, if he availed himself of ground transportation. But the latter not being the case, Verrier has been able to cram 48 hours' work into a very easy 24 hours, what with a plane that can send him drumming more places in less time.

Recently, the air-traveling salesman prepared to go on a 4,000-mile round trip which was to bring him through Arizona, Mexico, Texas, Oklahoma and Kansas. This called for special observation by Breeze; and so Vice President Joseph F. Lucas took out his stop watch and said, in effect: "Okay, Verrier, shoot!"

The Californian flew from stop to stop, alighting on fields, displaying his wares, writing in his sales pad, and climbing for the sky again. When he returned home, Mr. Lucas glanced at his stop watch and was as convinced as ever of the practicability of air-traveling salesman, for Verrier, in covering those 4,000 miles, had spent two full days less in actual travel time, and—even more important—he had made one-third more business calls than he could have made by other means of travel.



GORDON C. SLEEPER, appointed sales manager of the Personal Plane Division of Republic Aviation.

Mr. Sleeper who joined Republic in March, 1942, as assistant to the president has filled posts as controller of materials and director of postwar planning. In addition to his new duties of organizing domestic and foreign sales of the company's recently announced *Amphibian Seabee* model, will continue as director of public relations responsible for advertising, publicity and sales promotion.



A. F. HOCK, well-known automotive sales executive, who has joined Pennsylvania-Central Airlines to fill the newly-created position of general traffic manager.

Mr. Hock, a native of St. Louis, leaves the Chrysler Corporation, for which he was national merchandising manager. He has spent the greater part of his 20 years in the automotive and transportation fields in Detroit, where he was an executive with several of America's major car manufacturers.

He will assume full direction of PCA's sales programs, policies, and field personnel and will undertake the development of procedures that will prepare this airline's traffic department for its expanded role in postwar air commerce. Among Mr. Hock's initial duties will be the establishment of a New York traffic office in preparation for the opening in ensuing months of the extension of PCA's system into New York.



COLONEL LESLIE P. ARNOLD, AAF, Commander of the 302nd Air Transport Wing of the Air Service Command, the organization which flew supplies to our invasion armies in Normandy, Holland, and southern France, now back in his executive post with Eastern Air Lines where he assists Captain Eddie Rickenbacker.

During his 20 months in England and France, Colonel Arnold's Command grew from 700 men to more than 6,000. His years of experience in administrative work in the air transport industry proved invaluable in organizing a vast military airline. He was in charge of all movement of air cargo, military passengers, evacuation of wounded men by air, and ferrying military aircraft between the British Isles and the Continent. His planes frequently flew to far corners of the world.

Colonel Arnold was awarded the Legion of Merit by command of General Eisenhower on May 2, 1944. He is also a veteran of the First World War.

MAJOR THOMAS M. LEMLY, CHARLES J. PAYNE, MANLEY E. BEARD, EDWIN H. BISHOP, and ALLEN V. BIRMINGHAM, all of whom have won promotions in the traffic department of Delta Air Lines . . . **HARRY GROW**, who has left the Pere Marquette Railroad in Detroit to join the traffic staff of PCA . . . **W. L. SCOTT**, elevated to the position of superintendent of reservations and ticket offices for C&S.

GLENN W. EVERES, RUDDICK, W. J. HARTLAND, and D. E. FLEISCHNER, United Air Lines air cargo supervisors, who have been reassigned to various parts of the country . . . **D. A. O'CONNOR**, now working in his new capacity as director of passenger sales in the Eastern region for Eastern Air Lines . . . **WALLACE I. GATES**, district traffic manager for PCA, who has become the first airline representative to head the Buffalo Passenger Association.

HUGH ALLEN, internationally known as a public relations authority on lighter than air transportation, who has completed 25 years' service with the Goodyear Tire & Rubber Company and its aeronautical subsidiary, Goodyear Aircraft Corporation.

Uncle Hughie, as he is familiarly known, was presented a diamond studded service pin by P. W. Litchfield, Goodyear board chairman and president of the aircraft subsidiary.

A native of Washington Court House, Ohio, and a graduate of the University of Michigan, he served on papers in the far Northwest, in Cleveland, and as managing editor of *The Akron Beacon Journal* before joining the Goodyear organization in 1920. During the past quarter-century, Mr. Allen has written numerous books on ballooning and airship transportation, a historical account of the company's growth, served as American representative for Dr. Hugo Eckener on his initial airship flights between this country and Germany, and has contributed scores of articles on airships to aviation magazines.



RUSSELL GEROULD and **ELMER P. THOMPSON, JR.**, both of whom have been engaged to assist Perley Boone in handling the national publicity of the Air Transportation Association. Until recently secretary to Governor Saltonstall (now United States Senator) of Massachusetts, Mr. Gerould previously served as a Washington correspondent for *The Boston Herald*. He also worked as a reporter in the Massachusetts capital, as well as city editor and Sunday editor. Mr. Thompson, a well-known reporter and feature editor, was formerly automobile and aviation editor of *The New York Evening Post* and editor of *Travelore*.

C. WESLEY ARCHBOLD, for two years supervisor of the preparation of flight meals for United States Army air crews in three war areas, on his promotion to director of food service for Northwest Airlines.



Archbold was assigned to the supply and service division of the Air Transport Command two years ago, specializing in flight meals and dehydrated foods. Under his direction, menus were prepared for air crews operating in the Caribbean, South Atlantic and the African Middle East wings of the ATC.

He entered the Army, attaining the rank of captain, after serving three years as supervisor of food service for American Airlines, during which time he helped pioneer phases of hot food service for commercial aircraft. Previously he was manager of a large New York restaurant and also was supervisor of the food department for a chain of 19 large department stores in cities throughout the country.

A member of the National Restaurant association, Archbold has written many articles on restaurant service. As a result of an article written several years ago, he was invited to supervise installation of the first soda fountain in Rome, Italy. Mr. Archbold was given a medical discharge from the Army last month.

ROBERT H. BOLANDER, JR., secretary and general counsel of Chicago and Southern Air Lines, who has been elected a vice president of the company's board of directors. **WILLIAM DAVID FRASER ENGLISH**, Toronto-born assistant vice president of Trans-Canada Air Lines, now in his new post as president in charge of operations. **FRED R. CLEMENS**, Pennsylvania-Central's Pittsburgh traffic manager, who has been named to the newly-organized Pittsburgh District Aviation Commission, a group sponsored by the city's Chamber of Commerce.

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FRED A. VON RITTER, elevated to the post of assistant director of public relations in charge of advertising and sales promotion for Republic Aviation.

He came to Republic about two years ago where he reorganized the Army Air Force Factory Training School at Farmingdale, Long Island, serving as its administrator until December, 1943. The public relations department was established at that time and he left to join it.

Although he spent a part of his youth in Canada, and went to school there, Mr. von Ritter was born in Danville, Illinois. He returned to the United States, later entering the Navy and serving through the last war as a chief petty officer. In the postwar years he went to work for *The Chicago Herald Examiner*, took a flier in the oil burner business, and then returned to the employ of his old



paper to organize its New York business office. Before coming to Republic he was associated with the Gravure Section Corporation in an executive capacity.

STEWART FAULKNER, newly appointed assistant to Chester M. Mayer, president of Air Express International Agency.

Mr. Faulkner has been prominent in air transportation and manufacturing circles for the past 10 years. He came to New York direct from Alaska, where he was assistant general traffic manager and director of research and planning for Alaska Airlines. Previous to his Alaska affiliation, Mr. Faulkner was associated with the Material Sales Division of Lockheed Aircraft Corporation, and with American Airlines in Boston, Chicago, New York and Los Angeles.



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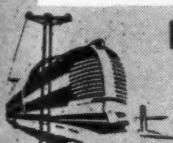
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AIR TRANSPORTATION Books

THE AIRCRAFT ANNUAL: 1945—EDITED BY DAVID C. COOKE (McBride, 288 pages, \$2.75). Up-to-date information—complete and detailed—on the history of aviation and the developments in the field during the past year. It is non-technical in form, "but technically correct throughout." A very good reference book.

AIRPLANE ENGINE MECHANICS—BY ROLLA HUBBARD AND AUGUSTIN DILWORTH (McGraw-Hill, 260 pages, \$3). A volume of questions and answers prepared for aircraft employees, mechanics, pilots, machinists, and others engaged in the production and operation end of the aircraft industry.

GAS TURBINES AND JET PROPULSION FOR AIRCRAFT—BY G. GEOFFREY SMITH, M.B.E. (Aerosphere, 124 pages). A comprehensive survey of the field, with an introduction by T. P. Wright.

HELLDIVER SQUADRON—BY ROBERT OLDS (Dodd, Mead, 225 pages, \$3). The story of Carrier Bombing Squadron 17 with Task Force 58. A gripping story born of the war in the Pacific. Really good stuff.

HERE'S HOW TO FLY—BY GILBERT PAUST, M.A. (Essential, 264 pages). Air history, aerodynamics, navigation, metereology, load factors, aircraft engines—all are included. There are also several hundred multiple-choice questions with answers, patterned after Government tests.

MAN'S FIGHT TO FLY—BY JOHN P. V. HEINMULLER (Funk & Wagnalls, 366 pages). An extraordinarily good chronology of aviation together with more than 200 documental photographs. Excellent make-up and of enduring value. The foreword is written by Eddie Rickenbacker.

THE PACIFIC WORLD—EDITED BY FAIRFIELD OSBORN (Norton, 218 pages, \$3). The whole area's story—discovery, exploration, plant and animal life, the ocean and ocean life, the peoples, stars, climate, wind—is presented in interesting form. There are also descriptions of nine important regions. William Beebe wrote the introduction.

PIONEERING THE HELICOPTER—BY C. L. "LES" MORRIS (McGraw-Hill, 161 pages plus photographs, \$2.75). See *Airdom*, Page 47.

PRODUCTION ENGINEERING IN THE AIRCRAFT INDUSTRY—BY A. B. BERGHELL (McGraw-Hill, 307 pages, \$3). A practical text embodying principles, illustrated by specific cases, questions and answers, for the solution of common problems encountered in the aircraft industry. Good for the student without previous knowledge of shop production, machinery, or tools.

THEY FLY TO FIGHT—BY KEITH AYLING (Appleton-Century, 191 pages, \$2.50). This is the story of what the airborne divisions are doing to win the war. A good war book, it also points up the part that the big aerial troop transports are playing in the current conflict. Certainly recommended reading.

CAB Decisions Give 4 Lines New Routes

Four airlines were benefited through decisions of the Civil Aeronautics Board authorizing the establishment or extension of routes. These included American Airlines, Braniff Airways, Chicago & Southern Air Lines, and Western Air Lines.

American was authorized to extend its Route No. 23 from Nashville, Tennessee, to Oklahoma City, Oklahoma, via Tulsa, Oklahoma. It was also authorized to extend its Route No. 4 from El Paso, Texas, to Tulsa via Oklahoma City. These extensions will provide an alternate transcontinental routing for American and transcontinental service for Tulsa and Oklahoma City. American is also authorized to serve Joplin, Missouri, on its route No. 30.

In the same decision Braniff Airways was authorized to extend its Route No. 15 from Oklahoma City to Memphis, Tennessee, via Tulsa and Muskogee, Oklahoma, and Fort Smith and Little Rock, Arkansas.

Chicago & Southern Air Lines was granted a permanent authorization to render service at Little Rock, Arkansas, on Route No. 53 between Pine Bluff and Memphis. It had been serving this point on a temporary basis.

The CAB granted Western Air Lines, Inc., a route between Los Angeles, California, and Denver, Colorado, via Las Vegas, Nevada, and Grand Junction, Colorado. Applications of Transcontinental & Western Air, United Air Lines, and Continental Airlines for the same route were denied.

N. Y. Aviation Clinic March 16

Representative Jennings Randolph of West Virginia is the scheduled luncheon speaker of the all-day session of the New York Airport Development Clinic to be held in the grand ballroom of the Hotel Pennsylvania on March 16. The clinic is sponsored by the Aviation Section of the New York Board of Trade, headed by John F. Budd, editor and publisher of *AIR TRANSPORTATION*.

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The first plane to fly the new Australia-Britain air service is expected to take off this month. Announcing this, Acting Prime Minister Francis Forde said converted Lancaster aircraft would be used for the time being, each plane covering the whole distance between Australia and Britain.

A system of 22 Air Pick-up routes in 10 southern states is sought by All American Aviation in an application which the company has filed with the Civil Aeronautics Board. The system proposed by the airline would cover 425 cities and towns in Virginia, West Virginia, North Carolina, South Carolina, Tennessee, Alabama, Georgia, Kentucky, Mississippi, and Ohio.

Approximately 5,000 cities, towns and communities would have one or more airports under Representative Clarence Lea's proposal to the House. In addition to providing an airport development and zoning program, Lea proposes to set up the Civil Aeronautics Authority as an independent regulatory agency for civil aviation, and create the post of directors of air safety for the independent investigation of aircraft accidents.

Touted as the key to reduced plane weight and to improved aerodynamics, a plastic airplane fuselage has been flown and an improved version is being built by engineers of the Air Technical Service Command. It is constructed of glass fiber laminated with a newly developed contact resin. The first successful laminated plastic aircraft primary structure proved 50 percent stronger than a metal fabrication and 80 percent stronger than a wooden fuselage on a strength-weight basis. It was conceived, designed, and built at Wright Field by the ATSC engineering division.

Of 66 transport aircraft declared surplus by the United States Government, 27 DC-3s and 11 *Lodestars* went to domestic airlines, and 24 DC-3s and four *Lodestars* were released for foreign airlines. Five each went to Sweden and France; four to Brazil; three each to Spain, Mexico, Belgium, and Venezuela; and two to Cuba.

Capt. E. J. Kershaw, NAL vice president in charge of operations, expects to see the flying time between Jacksonville, Florida, and New York City sliced to three hours. The newest record is three hours and 42 minutes.

Such is the interest in trans-ocean flying that the traffic department of Trans-Canada Air Lines reports 54 persons had requested that their names be recorded on a waiting list for the first peacetime commercial crossing of the Atlantic as of last November 30. At the present time, TCA operates the trans-Atlantic service for the Dominion Government, carrying mail, freight and high-priority passengers.

A new record for a non-stop flight between Chicago and New York was set on Jan. 5 by a TWA cargo plane. Piloted by Capt. Andrew McIlwraith and co-piloted by W. J. Rollins, who blazed eastward in the TWA *Sky Rocket*, the plane landed on LaGuardia Field exactly two hours and 48 minutes after leaving Chicago, smashing the previous record by nine minutes. The flight carried about 800 pounds of mail and averaged about 274 miles per hour.

Nine short sea liner companies have accepted the offer of partnership in the rail-air plan for the United Kingdom, proposed by British railway companies: British and Continental Steamship Company, Brussels Steamship Company, Clyde Shipping Company, Coast Lines, Limited, Ellerman's Wilson Line, General Steam Navigation Company, MacAndrews, Limited, Ulster Steamship Company (G. Heyn and Sons, Limited), and United Baltic Corporation.

Pilots and members of crews of commercial airlines will be acceptable risks for ordinary life insurance under a liberalization of rules by the Equitable Life Assurance Society. Previously the company, as a leader among other companies, had lifted all restrictions against insurance of passengers on regular commercial flights. Now the pilots and crew men are made eligible at the cost of a slight extra premium amounting to five dollars per thousand.

A group of leading military, professional, and businessmen in Chile have organized and held the first meeting of an aeronautical club. The men plan to stimulate aviation interest in their country.

Charles H. Colvin of New York has been elected president of the Institute of Aeronautical Sciences for 1945. Vice presidents elected were William A. M. Burden, Assistant Secretary of Commerce; LeRoy R. Gruman, aircraft manufacturer of Bethpage, Long Island; I. M. Ladd, vice president of Consolidated Vultee; and Arthur E. Raymond, engineering vice-president of Douglas Aircraft. Bennett Horchler was re-elected executive vice president; Robert R. Dexter, secretary; Joseph J. Maitan, controller; and Earl D. Osborn, of Edo Aircraft, treasurer.

The civil air agreement between the United States and Iceland became effective February 1. It was signed at Reykjavik on January 27.

Aerovias Braniff, S. A., Mexican airline associate of Braniff Airways, has been allocated two DC-3s by the Surplus War Property Administration with which to begin operations. It was explained that these two ships are part of an initial order of eight placed by Aerovias Braniff. Built for Army transport service, these planes will be adapted for deluxe passenger service in the Braniff shops.

E. Lee Talman, executive vice president of Transcontinental and Western Air, has been elected to the board of directors of the First National Bank of Kansas City.

The Civil Aeronautics Board has denied the petitions of United Air Lines and Transcontinental & Western Air for a rehearing on the highly contested Los Angeles-Denver cut-off route which was awarded to Western Air Lines last November.

Passenger traffic over the route which will operate the shortest coast-to-coast airline schedule, will be activated with the delivery of the giant four-engined DC-4s and DC-6s now on order, according to Leo H. Dwerikotte, executive vice president of Western. He added that the airline has already filed an application with the CAB for an extension of the Los Angeles-Denver route into Minneapolis. Hearings on this route are expected to come up in the capital on March 5.

A plan has been proposed by Braniff Airways to create new airline service between the western half of the United States and the Southeast and Eastern Seaboard. Two applications were filed with the Civil Aeronautics Board: one to extend its service east of Memphis to Atlanta by way of Chattanooga; and the other to provide service east of Memphis to Washington, Philadelphia and New York via Chattanooga, Charlotte, North Carolina, Raleigh, North Carolina, and Norfolk, Virginia.

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